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of Transportation

United States
Coast Guard



Radarman First Class (CIC Operations for OS1)

**U. S. Coast Guard
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RADARMAN FIRST CLASS (CIC OPERATIONS FOR OS1)

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QUESTIONS ABOUT THIS TEXT SHOULD BE
ADDRESSED TO THE SUBJECT MATTER SPECIALIST
FOR THE RADARMAN RATING

Acknowledgments and References

Acknowledgments

Material is included in this pamphlet through courtesy of the designated source. The Coast Guard appreciates permission of the source to use this material, which contributes greatly to the effectiveness of this course. No copies or reproductions of the material are authorized without permission of the appropriate source.

Appreciation to the Federation of American Scientists (FAS) for use of segments from FAS web page.

List of References

This pamphlet contains original material developed at the Coast Guard Training Center, Yorktown, Virginia, and excerpts from the following technical publications:

See Appendix E.

Notice to Students

Purpose	This pamphlet serves as a training aid to provide you with a general knowledge of equipment, training, operations, intelligence, and administration for CIC.
Important Note	This text has been compiled for TRAINING ONLY. It should NOT be used in place of official directives or publications. The test information is current according to the references listed. You should, however, remember that it is YOUR responsibility to keep up with the latest professional information available for your rating. Current information is available from the Enlisted Qualifications Manual, COMDTINST M1414.8 (series).
Course Content	This course content is based on the requirements stated in the Enlisted Qualifications Manual, COMDTINST M1414.8 (series).
Pamphlet Content	<p>This pamphlet contains eight lessons:</p> <p>Lesson 1 Training</p> <p>Lesson 2 Administration</p> <p>Lesson 3 Communications Plans</p> <p>Lesson 4 Search and Rescue</p> <p>Lesson 5 Piloting and Shipping Officers</p> <p>Lesson 6 CIC Electronic Equipment</p> <p>Lesson 7 Global Command and Control System - Maritime (GCCS-M)</p> <p>Lesson 8 Intelligence</p>

Notice to Students

Learning Objectives

Read the learning objectives before you begin reading the text. The objectives will guide you through the text and help you answer the questions in the self-quiz at the end of each lesson.

Quizzes

Each lesson has a self-quiz and each pamphlet has a pamphlet review quiz. You will find the answers to each quiz on the pages following the quiz. Included are the reference pages for the answers.

These self-quizzes are meant to check your comprehension of the material you covered. If you are having problems understanding a section, go through it again or ask someone for help. The pamphlet review quiz questions are samples of the type of questions you will find on the end-of-course-test (EOCT).

SWE Study Suggestion

Servicewide exam questions for your rate and pay grade are based on the Professional and Military Requirements sections of the Enlisted Qualifications Manual, COMDTINST M1414.8 (series).

If you use the references from this text and consult the Enlisted Qualifications Manual, you should have good information for review when you prepare for your servicewide exam (SWE).

Use of Acronyms

Throughout this course, you will see acronyms along with their meanings. Many of these acronyms will be used on your end-of-course test; therefore, a glossary of acronyms to be used as a study guide has been included at the end of this pamphlet.

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Lesson 1

TRAINING

Overview

Introduction

This assignment describes the procedures for using Personnel Qualification Standards (PQS), Job Qualification Requirements (JQRs), Onboard Training Teams (OBTTs) and oral qualification boards to properly train CIC personnel.

Objectives

After completing this lesson, you will be able to:

- **DEFINE** the following training terms:
 - Personnel Qualification Standards (PQS)
 - Job Qualification Requirement (JQR)
 - Standard Answer Book (SAB)
 - PQS qualification
 - Interim qualifiers
 - Oral board
 - **LIST** the requirements to produce a JQR.
 - **IDENTIFY** the procedures to tailor a PQS to a unit's needs.
 - **IDENTIFY** the requirements to become a PQS qualifier.
 - **IDENTIFY** the sources for ordering PQS materials.
 - **IDENTIFY** the responsibilities of the training officer and division leading petty officer in PQS administration.
 - **IDENTIFY** the purpose of an oral/written board in the PQS qualification process.
 - **MATCH** the members of an Onboard Training Team (OBTT) to their responsibilities.
 - **DETERMINE** the proper sequence of events conducted by an OBTT in a planned drill/exercise.
-

Reference

The information contained in this lesson can be found in the following reference:

- Cutter Training and Qualification Manual, COMDTINST M3502.4 (series)
-

Overview

Performance Qualification

This lesson covers the following performance qualifications for RD1 from the Enlisted Qualifications Manual:

A.6.01 – Schedule and supervise training programs among CIC personnel in accordance with table 5.1 of the Cutter Training and Qualification Manual, COMDTINST M3502.4 (series).

A.6.02 – Train CIC watch standers for each watch station in preparation for qualification in accordance with the Training and Qualification Manual, COMDTINST M3502.4 (series).

Glossary

Terms and definitions for this lesson can be found in the glossary.

Personnel Qualification Standards (PQS)

PQS Requirements

All watch station assignments require the use of PQS qualification system including:

- Watch, Quarter, and Station Bill
- AMIO Bill
- L/E Bill
- Other formally promulgated watch bills

The unit training program is carried out through the use of Navy and Coast Guard PQS booklets listed in Table 5-1 of the Cutter Training and Qualification Manual, COMDTINST M3502.4 (series). Cutters are only required to obtain those booklets needed to meet their specific watch station requirements. Navy PQS booklets not listed in Table 5-1 may be obtained and implemented as needed.

Coast Guard PQS shall be used in lieu of Navy PQS, when available.

Once a common watch station is completed, it need not be repeated to qualify a later watch station. The earlier completion may be cited in the qualification book. For example, if a newly assigned member completes the sound-powered phone PQS for damage control, the member will not be required to complete it again for navigation log keeper.

Job Qualification Requirements

JQRs are locally produced PQS-type manuals for watch stations with no existing PQS. They are designated JQR to distinguish them from formally promulgated PQS.

JQRs are to be written in the same format as Navy PQS booklets.

Sharing of JQRs among cutters is encouraged to help standardize the program and relieve administrative burden on individual cutters. Samples of JQRs can be submitted to Commandant (G-OCU), via area commanders, to aid in the development of Coast Guard-specific PQS for those areas where no PQS exists.

Personnel Qualification Standards (PQS)

Tailoring PQS

PQS booklets shall be tailored to meet individual unit's requirements of equipment, systems, and system configuration. Units shall **NOT** restructure or change format of the booklet. Cutters may add or delete line items, fundamentals, systems, and watch stations that are unique to the cutter but not already covered in the PQS booklet.

Samples of tailored PQS can be submitted to Commandant (G-OCU), via area commanders, to aid in the development of Coast Guard-specific PQS.

PQS Qualifiers

PQS qualifiers are acknowledged experts in a specified field. Qualifiers are normally E-5 or above and shall be command certified up to and including the watch station they are authorized to sign off. In addition, PQS qualifiers are responsible for:

- Protecting the integrity of the PQS system by guiding trainees to answers and not giving away answers or signatures.
 - Informing supervisors of problems and recommending changes to PQS booklets, JQRs, and SABs.
-

Ordering PQS

Navy PQS materials are distributed on CD-ROM and are available on the Internet. Commandant (G-OCU) will provide each cutter with a CD-ROM of USN PQS. Each cutter has been assigned a user ID and password by Commandant (G-OCU) to access the USN PQS web site: www.cnet.navy.mil/netpdtc/pqs/default.htm. A link to this site is also available at the Headquarters (G-OCU) web site. This site can be used to download USN PQS. Booklets may also be purchased from the Defense Automated Printing Service.

Coast Guard PQS can be ordered in accordance with the Directives, Publications, and Reports Index (DPRI), COMDTNOTE 5600.

Cutters may reproduce PQS booklets locally.

PQS Administration

Training Officer The training officer is required to maintain a comprehensive record of all PQS/JQR completions for the unit. The training officer may use Forms CG-5396B, 5396C, 5396D, SORTS decision aids, or any paper/electronic format that is suitable.

Division Leading Petty Officer During the unit indoctrination, the division leading petty officer should assign PQS to newly reported personnel including PQS completion dates. The completion date should take into account operation schedule and any required formal schooling. The PQS assigned and completion dates shall be tracked and updated as necessary. The unit training officer shall be briefed on the status of division PQS progress and completion. The division leading petty officer should also track drills and exercises required in Table 6-1 of the Cutter Training and Qualification Manual, COMDTINST M3502.4 (series) and maintain a record of all completed exercises.

These duties may be delegated to a division training petty officer.

PQS Completion Matrix

Step	Action
1	Newly reported personnel are assigned PQS and completion dates
2	PQS completed.
3	Oral board completed.
4	Final certifying authority approves qualification.
5	CG-3307 entered into unit PDR.
6	Leading petty officer updates division PQS matrix and advises unit training officer of update.

Standard Answer Books (SABs)

General

SABs were developed to facilitate uniformity in the qualification process and to reduce the administrative burden on individual commands. SABs shall not be given to trainees as a substitute for applicable references.

Table 5-1 of the Cutter Training and Qualification Manual, COMDTINST M3502.4 (series) lists SABs available for Coast Guard use.

Samples of SABs can be submitted to Commandant (G-OCU) for evaluation and to aid in the development of Coast Guard-specific SABs for those areas where no SABs exist.

Oral Boards

Requirements

Oral boards shall be used for all watch station qualifications, unless the CO/OIC has authorized the use of a written examination. A minimum board consists of two members and should include:

- At least one qualified OOD, EOW, or TAO depending on the type of watch station for which the member is qualifying.
- Division officer or department head responsible for the watch station when an E-6 or above is qualifying.

Final PQS step

Appearance before an oral board is the final step in PQS qualification, following satisfactory demonstrating skills and knowledge of the fundamentals, systems, and watch station sections as a PQS. The board is used to determine if the member has the required knowledge and whether member's skills are at a satisfactory level.

Qualification Process

Final Certifying Authority

The CO/OIC is the final certifying authority for OOD, TAO, boarding officer, boarding team member, and coxswain. The XO/XPO or department heads are the final certifying authority for all other watch stations.

The oral board will make a recommendation to the final certifying authority, who shall make a determination regarding qualification of the member. Recommendation from the board may be written or oral.

Interim Qualification

The CO/OIC may certify an individual as “interim qualified” to stand watch based upon the following:

- Determination of minimum qualification accomplishments that will safely support the watch station.
- Completion of an oral board to determine if individual has met those minimum qualifications.
- Review of member’s previous experience and progress toward final PQS qualification.

Interim qualifications will be strictly controlled and completion of final qualification shall be made as soon as possible. Examples of when interim qualification may be authorized are:

- A newly commissioned cutter when it is difficult to qualify all watch standers.
- A shortage of qualified watch standers that places an excessive strain on qualified personnel.
- Use of temporarily or recently assigned watch standers is necessary.

Note: Interim qualification of law enforcement personnel is **NOT** authorized.

Documentation of Qualification

Administrative Remarks (CG-3307) shall be used to document watch station qualification, either final or interim. Significant (OOD, EOW, and TAO) watch station qualification CG-3307s shall be sent to Commandant (CGOC-adm-3). Copies of the CG-3307s shall be placed in member’s training record (Folder CG-5285).

Onboard Training Team (OBTTs)

Purpose The OBTTs are responsible for planning, conducting, assessing watch station performance, and evaluating all drills and exercises listed in the Cutter Training and Qualification Manual, COMDTINST M3502.4 (series), Table 6-1.

Members Training teams shall consist of the most qualified officers and petty officers that are PQS qualified up to and including the watch station they evaluate. Training teams shall consist of the following members:

Member	Responsibility
Officer-in-charge/petty officer-in-charge (team leader)	Ensures training teams are knowledgeable about exercises and drills to be conducted.
Drill/exercise initiator	Initiates drills/exercises and evaluates drills/exercises after initiation.
Safety observer	Ensure all applicable safety procedures are followed.
Evaluator	Observes and grades watch team.

Required Teams Cutters shall have the following teams:

- Damage Control Training Team (DCTT)
- Engineering Training Team (ETT)
- Navigation and Safety Training Team (NSTT)
- Combat System Training Team (CSTT) – if equipped with fire control system
- Aviation Training Team (ATT) – if flight deck equipped
- Integrated Training Team (ITT) – cutters 180 feet and larger

Other training teams may be formed as the command deems necessary, i.e. Communications Training Team (CTT).

OBTTs

Scheduling

OBTTs shall coordinate with the unit training board to ensure planned drills and exercises are scheduled in the Unit Training Plan. Some exercises require the cutter to be under way and the vessel's schedule may prevent the completion of drills/exercises during a specified periodicity. The cutter is not excused from completion of the drill but rather, the drill/exercise is required to be completed.

The OBTT is responsible with coordination with other units, issuing pre-exercise messages and obtaining area clearances as needed.

Planning

To properly plan a successful exercise, the following guidelines should be defined by the OBTT:

- Purpose and objective of the exercise.
 - Scenario and equipment required for the exercise.
 - Major events and casualties.
 - Safety warnings and cautions must be emphasized.
 - Responsibilities and location of OBTT members during the exercise.
-

Pre-exercise Brief

The team leader or representative is required to conduct a thorough pre-exercise brief prior to execution of a drill/exercise. The briefer will provide each member with a copy of the exercise package and critique sheets. Drill guides will be provided to each initiator/evaluator as required. The brief should also cover coordination, team assignments, initiations, disclosure procedures and timing, grading, and safety considerations. During the brief, COMEX/FINEX times shall also be established and any timeline conflicts resolved. The brief will also cover equipment status and safety considerations for both equipment and personnel.

OBTBs

Drill Plan

A drill plan must detail any imposition of casualties or operational procedures. The drill plan should include:

- Time periods and watch stations.
- Individual drills or procedures including the space and watch station on which it is to be imposed.
- Realistic scenario.
- OBTT member assignments.
- Contingencies and specific directions when participants' actions result in different outcomes in the scenario.

The drill plan should take into consideration the condition of the engineering plant, equipment and safety devices out of commission, length of drill, training of watch standers, and external restrictions imposed on OBTT (e.g., cutter must maintain course).

Safety

Safety of personnel and equipment is paramount during any training exercise. Exercises should not create actual hazards or bypass existing safety protocols. Prior to commencement of any drill/exercise, OBTT members will conduct a safety walkthrough of their areas of responsibility and make reports to the OBTT leader.

If an OBTT observer witnesses a safety violation during an exercise, he/she shall immediately take actions necessary to stop the drill/exercise and correct the unsafe condition. Observers witnessing a major safety infraction shall deduct 40 points from the exercise grade and 15 points for a minor safety violation.

Simulations

Simulations are required to properly carry out many operational and casualty procedures. Though simulations are required to complete many drills/exercises, simulations may reduce the benefit of training. To ensure the maximum benefit the following rules should be followed:

- Keep simulations to a minimum.
 - Simulations should be conducted with as much realism as possible.
 - Simulations should be standard throughout the ship.
-

OBTs

Evaluation and Critiques

Evaluation is an important step in completing the exercise. Evaluation criteria for most drills are found in Fleet and Allied Exercise Publications (FXPs/AXPs). During the exercise, the evaluator shall record observations and grades on an appropriate evaluation form. Upon completion of the exercise, the evaluator shall assign a numerical score based on 100 maximum points and determine if the exercise was satisfactorily completed. Exercises graded as unsatisfactory will not be counted as completed exercises. Exercises with a numerical score of 62.5% or above are considered satisfactory.

Critiques are an important facet of the evaluation process. Critiques must be completed for each drill and should be conducted as soon as practical following completion of the drill. Critiques should emphasize positive performance and not belabor poor performance. The critique should concentrate on training objective met, objective not met, and lessons learned. Material and communication deficiencies uncovered by the drill will also be covered during the critique.

All OBT members and watch standers should participate in the critique. Watch standers should be given an opportunity to critique the OBT with respect to scenario realism, simulations, and team coordination.

Critiques shall be kept as part of the ship's training records and utilized in the preparation of future drills.

Administration

Once exercises/drills are completed, the drill package shall be routed to the training officer via the appropriate department head and shall be maintained for a minimum of two calendar years.

OBTTs

Sequence of Exercise

Step	Action
1	OBTT leader meets with training board to schedule exercise.
2	OBTT members meet and construct drill plan.
3	OBTT members conduct pre-exercise brief.
4	OBTT members conduct safety walkthrough and report results to OBTT leader.
5	OBTT leader obtains commanding officer's permission to conduct exercise (or officer of the deck's permission for exercises conducted after the workday).
6	Exercise conducted.
7	Observers complete evaluations.
8	OBTT members conduct exercise critique.
9	Evaluations routed to training officer and maintained in file for two calendar years.

Lesson 1 Self-Quiz

Questions

1. Match the items in column A with their definitions in column B. Use each description only once.

<u>Column A</u>	<u>Column B</u>
_____ 1. PQS	a. Not authorized for law enforcement personnel.
_____ 2. JQR	b. Required for all watch stations unless written exam authorized by CO/OIC.
_____ 3. Oral Board	c. Must include unit CO.
_____ 4. SAB	d. A qualification system wherein certification of a minimum level of competency is required.
_____ 5. Interim Qualification	e. Produced when no PQS is available for watch station.
	f. Developed to facilitate uniformity in the qualification process and to reduce the administrative burden on individual commands.

2. List two requirements for producing a JQR.

- a. _____
- b. _____

3. Samples of tailored PQS booklets should be submitted to ____.

- A. COMDT (G-WTT)
B. COMDT (G-OCU)
C. District commander
D. MLC (vr)

4. PQS qualifiers are NORMALLY paygrade _____ or above.

- A. E-2
B. E-4
C. E-5
D. E-7
-

Lesson 1 Self-Quiz

Questions (Continued)

5. PQS books CANNOT be obtained from which of the following sources?
 - A. Directives, Publications, and Reports Index (DPRI), COMDTNOTE 5600
 - B. Government Printing Office (GPO)
 - C. Navy distributed CD-ROM
 - D. World Wide Web
6. Who is responsible for maintaining a comprehensive record of all PQS/JQR completions for the unit?
 - A. Executive officer
 - B. Training officer
 - C. Division chief petty officer
 - D. Division leading petty officer
7. What is normally the FINAL step in the PQS qualification process?

8. Match the OBTT members in column A with their responsibility in column B. Use each responsibility only once.

Column A

Column B

- | | |
|--|---|
| _____ 1. Officer-in-charge/petty officer-in-charge | a. Coordinates with department heads in scheduling drills/exercises. |
| _____ 2. Drill/exercise initiator | b. Ensures training teams are knowledgeable about exercises and drills to be conducted. |
| _____ 3. Safety observer | c. Evaluates drills/exercises after initiation. |
| _____ 4. Evaluator | d. Ensures all applicable safety procedures are followed. |
| | e. Observes and grades watch team. |
-

Lesson 1 Self-Quiz

Questions (Continued)

9. Number (1 through 9) the following actions of an On Board Training Team (OBTT) in the order of completion.
- _____ OBTT members meet and construct drill plan.
 - _____ Evaluations routed to training officer and maintained in file for two calendar years.
 - _____ Exercise conducted.
 - _____ OBTT members conduct pre-exercise brief.
 - _____ OBTT leader meets with training board to schedule exercise.
 - _____ OBTT leader obtains commanding officer's permission to conduct exercise.
 - _____ Observers complete evaluations.
 - _____ OBTT members conduct exercise critique.
 - _____ OBTT members conduct safety walkthrough and report results to OBTT leader.
-

Answers to Self-Quiz

Question	Answer	Reference
1		1-3 – 1-8, Glossary
	<div> <div>Column A</div> <div>Column B</div> </div>	
	<div> <div>___d___ 1. PQS</div> <div>a. Not authorized for law enforcement personnel.</div> </div>	
	<div> <div>___e___ 2. JQR</div> <div>b. Required for all watch stations unless written exam authorized by CO/OIC.</div> </div>	
	<div> <div>___b___ 3. Oral Board</div> <div>c. Must include unit CO.</div> </div>	
	<div> <div>___f___ 4. SAB</div> <div>d. A qualification system wherein certification of a minimum level of competency is required.</div> </div>	
	<div> <div>___a___ 5. Interim Qualification</div> <div>e. Produced when no PQS is available for watch station.</div> </div>	
	<div> <div></div> <div>f. Developed to facilitate uniformity in the qualification process and to reduce the administrative burden on individual commands.</div> </div>	
2	<div> <div>a. Unit has watch station with no existing PQS.</div> <div>b. JQR is written in same format as Navy PQS booklets.</div> </div>	1-3
3	B	1-4
4	C	1-4
5	B	1-4
6	B	1-5
7	Appearance before an oral board.	1-7

Answers to Self-Quiz

Question	Answer	Reference
8		1-9
	<u>Column A</u>	<u>Column B</u>
<u> b </u>	1. Officer-in-charge/petty officer-in-charge	a. Coordinates with department heads in scheduling drills/exercises.
<u> c </u>	2. Drill/exercise initiator	b. Ensures training teams are knowledgeable about exercises and drills to be conducted.
<u> d </u>	3. Safety observer	c. Evaluates drills/exercises after initiation.
<u> e </u>	4. Evaluator	d. Ensures all applicable safety procedures are followed.
		e. Observes and grades watch team.
9		1-13
<u> 2 </u>	OBTT members meet and construct drill plan.	
<u> 9 </u>	Evaluations routed to training officer and maintained in file for two calendar years	
<u> 6 </u>	Exercise conducted.	
<u> 3 </u>	OBTT members conduct pre-exercise brief.	
<u> 1 </u>	OBTT leader meets with training board to schedule exercise.	
<u> 5 </u>	OBTT leader obtains commanding officer's permission to conduct exercise.	
<u> 7 </u>	Observers complete evaluations.	
<u> 8 </u>	OBTT members conduct exercise critique.	
<u> 4 </u>	OBTT members conduct safety walkthrough and report results to OBTT leader.	

Lesson 2

ADMINISTRATION

Overview

Introduction

As a Radarman First Class, you will be responsible for writing and updating Coast Guard directives such as CIC doctrines and Commanding Officer's Battle Orders. This assignment describes the procedures for writing Coast Guard instructions, letters of promulgation, and manuals.

Objectives

After completing this assignment, you should be able to:

- **DEFINE** the following terms related to Coast Guard Directives System:
 - Directive
 - Manual
 - Instruction
 - Notice
 - Originating authority
 - **IDENTIFY** proper SSIC codes.
 - **IDENTIFY** the formatting procedures for Coast Guard directives.
-

References

The information contained in this lesson can be found in the following references:

- Coast Guard Directives System, COMDTINST M5215.6 (series)
 - Coast Guard Correspondence Manual, COMDTINST 5216.4 (series)
-

Performance Qualification

This lesson covers the following performance qualifications for RD1 from the Enlisted Qualifications Manual, COMDTINST M1414.8 (series).

A.6.03 – Draft local instructions and submit via the chain of command in accordance with the Paperwork Management Manual, COMDTINST M5212.12 (series).

Glossary

Terms and definitions for this lesson can be found in the glossary.

Standard Subject Identification Codes (SSIC)

Description

A Standard Subject Identification Code (SSIC) is a four- or five-digit number that stands for the subject of a document. SSICs are required on all Coast Guard, Navy, and Marine Corps letters, messages, directives, forms, and reports. The use of SSICs provides a tested method for filing documents consistently and retrieving them quickly. The Coast Guard mission areas are supplemented by a 16000 series of codes.

SSICs can be found in COMDTINST 5210.5 (series), available in paper format, on WSIII under Coast Guard Directives and Publications, and at a searchable site on the web at <http://www.uscg.mil/hq/g-s/g-si/g-sii/ssic/ssic.htm>.

The SSIC system is broken down into 13 major subject groups. These major subject groups are then broken down into primary, secondary, and tertiary subdivisions.

Example

The subject of an instruction is Photo Intelligence Collection. Here's the breakdown by major subject groups:

General category: Operations and Readiness: SSIC 3000

Primary subject: Intelligence General: SSIC 3800

Secondary subject: Intelligence Collection: SSIC 3820

Tertiary subject: Photographic: SSIC 3821

The SSIC for this instruction would be 3821.

Formatting Directives (Page Numbering)

General

All text and nontext material must be formatted to fit on an 8 ½ by 11-inch sheet of paper. Margins are 1-inch top and bottom, left justified ¾ inch and right unjustified ½ inch.

Use Coast Guard letterhead for the first page of the directive.

Page Numbering

Use the Arabic numeral system (1, 2, 3, etc.) to number pages. Do not number the first page.

For directives with chapters, begin numbering with 1-1, 1-2, 1-3, etc., with the first number being the chapter number.

For Tables of Contents, use the Roman numeral system (i, ii, iii, etc.).

Center all page numbers, ½ inch up from the bottom of the page.

Formatting Directives (Identification)

Identification

Starting on the second line below the unit address, place the directive identification. The identification includes the abbreviation of the directive type, SSIC, and suffix. A note is identified by the abbreviation NOTE, an instruction by INST, and a manual by INST with the letter M as a prefix to the SSIC.

Examples: UNDERWAYNOTE 3821.1 (NOTE)

UNDERWAYINST 3821.1 (INSTRUCTION)

UNDERWAYINST M3821.1 (MANUAL)

Suffixes are numbered subsequently for each instruction with the same subject. First instruction is XXXX.1, second XXXX.2 etc.

Examples: UNDERWAYINST 3821.1 (first instruction)

UNDERWAYINST 3821.3 (third instruction)

Classified directives are marked with a “C” for confidential, “S” for secret and “TS” for top secret, as a prefix to the SSIC.

Example: UNDERWAYNOTE C3821.1

Note: Subject and title should remain unclassified if possible.

Formatting Directives (Heading)

Description	<p>The fourth line following the unit address is the first line of the heading and contains the following:</p> <ul style="list-style-type: none">• Directive's full name• Cancellation Date• Subject• References
Directive Name	<p>First line of the heading shows directive's full name.</p> <p>Example: UNDERWAY NOTICE 3821</p>
Cancellation Date	<p>Second line of the heading shows the cancellation date. This line does not apply to instructions or manuals.</p> <p>Example: Cancelled: 15 Mar 2006</p>
Subject	<p>Third line of the heading is the subject line. Type this line in capital letters and use a concise statement of what the directive is about.</p> <p>Example: Subj: PHOTO INTELLIGENCE TEAM ASSIGNMENTS</p>
References	<p>The fourth and final line of the heading is the references. Rules for references:</p> <ul style="list-style-type: none">• Keep references to a minimum.• List references in the order they are presented in the text.• DO NOT reference draft material, unofficial directive information, or impose actions based on these documents.• Use the abbreviation NOTAL if all addressees do not hold the reference. <p>Example: Ref: (a) Intelligence Collection and Reporting by Coast Guard Units, COMDTINST M3821.5 (series) (b) Coast Guard Intelligence Manual, COMDTINST MS3800.1</p>

Standard Paragraph Titles

Description

Following the heading are the paragraphs that make up the directive. To maintain uniformity, standard paragraph titles should be followed. Though most are self-explanatory, a brief description of each paragraph is provided in the table below. Additional paragraphs may be inserted in the directive as needed. Titling requirements for additional paragraphs are explained on next page.

Paragraph Title	Mandatory	Optional	Description
Purpose	X		A brief summary of the directive and indicates the intended user.
Action	X		Assigns responsibility or delegates authority to ensure compliance with the directive. Example: ACTION: The intelligence officer is responsible to the commanding officer for compliance with this note.
Directive Affected	X		States what effect a directive has on previous or existing directives such as cancellation, updating, or supplementing.
Background		X	Gives a brief background of the instruction.
Discussion		X	Though this paragraph is optional it is often used to provide a foundation for information which follows.
Procedure		X	States specifics about how a job is to be performed.
Changes		X	Imparts new information impacting a program.
Forms/Reports	X (required if directive prescribes the use of a form or directive)	X	Gives information about possible forms and reports the directive may require, as well as where requisite forms may be obtained.
Appendixes		X	Provides related but distinctly separate material at the end of a directive. Example: If a directive applies only to one specific unit or person, an Appendix could be utilized instead of including the information in the general text of the directive
Signature	X		Requires originating authority's signature for directive to be in effect. Units shall follow their individual signature authority guidelines.

Formatting Directives

Additional Paragraph Titles/Section Numbers

Be consistent in using titles. If one sub-paragraph is titled, all other sub-paragraphs at the same level in that section must have titles. Underline each title or use bold face type. Use paragraph titles for major subject divisions of a document. Manuals will begin with chapters, and all other directives will begin with paragraphs.

Exhibits/Figures

Exhibits and figures should be placed closest to their first reference in the text and numbered sequentially, followed by the chapter number and separated by a dash (-).

Example: Exhibit 3-1 is the first exhibit of chapter 3.

Table of Contents

Any directive greater than 25 pages in length, not including enclosures and samples, must have a table of contents. The table of contents must include every chapter and section, also list paragraphs and sub-paragraphs if appropriate.

Text

Basic rules of writing text are as follows:

- Use everyday language.
- Keep sentences short.
- Use active voice.

Additional suggestions for writing text can be found in the Coast Guard Correspondence Manual, COMDTINST 5216.4 (series).

Enclosures

Enclosures used to provide supplementary information are numbered sequentially. If the enclosure contains exhibits or figures, they are labeled with the enclosure number, dash (-), and a letter.

Example: The first enclosure would be labeled Enclosure 1, an exhibit contained within enclosure 1 would be Exhibit 1-A.

Enclosures are listed two lines after the signature block. Use the abbreviation ENCL followed by the name of the enclosure. If your directive contains more than one enclosure, number the enclosure and place the number in parentheses.

Example: Encl: (1) Photo Titling Log
(2) Team assignments

Example of Directive

U.S. Department
of Transportation

**United States
Coast Guard**



Commanding Officer, Coast Guard
Cutter Underway
United States Coast Guard

Staff Symbol:
Phone: 757 555 1212

UNDERWAYNOTE 3821.2

CGC UNDERWAY NOTICE 3821.2

Subj: PHOTO INTELLIGENCE TEAM

Ref: (a) Coast Guard Intelligence Manual, COMDTINST MS3800.1
(b) Intelligence Collection and Reporting by Coast Guard Units, COMDTINST MC3821.5

1. PURPOSE: To promulgate the photo intelligence team duties for CGC UNDERWAY.
2. ACTION: The intelligence officer is responsible to ensure this bill in carried out.
3. DIRECTIVE AFFECTED: UNDERWAYNOTE MC3821.1 is cancelled.
4. TEAM ASSIGNMENTS: title additional paragraph as needed.

ISAAC M. NOAH
Commanding Officer

Encl: (1) Drawing of 8 point photography scheme

Lesson 2 Self-Quiz

Questions

1. A permanent type instruction containing 25 or more pages is defined as a/an _____.
 - A. Book
 - B. SSIC
 - C. Manual
 - D. Instruction
 2. Which of the following is NOT an authorized originating authority?
 - A. Commandant
 - B. Area commander
 - C. Station OIC
 - D. Admin officer
 3. When is an instruction cancelled?
 - A. Cannot be cancelled
 - B. One year after issuance
 - C. The first day of the fiscal year following issuance
 - D. When replaced or canceled by originating authority
 4. Which of the following is a properly formatted SSIC?
 - A. 11600
 - B. 3821.0
 - C. 112.12
 - D. 652
 5. The Coast Guard mission areas are supplemented by the _____ series of SSICs.
 - A. 1000
 - B. 3821
 - C. 16000
 - D. 19000
 6. Coast Guard letterhead is to be used on ____ page(s) of a directive.
 - A. all
 - B. only the first
 - C. only the last
 - D. the first and last
-

Lesson 2 Self-Quiz

Questions (Continued)

7. The heading of a directive contains all of the following EXCEPT ____.
- A. Subject
 - B. Enclosures
 - C. Cancellation Date
 - D. Directive full name
8. Which of the subject lines are written correctly?
- A. Subj: PHOTO INTELLIGENCE TEAM ASSIGNMENTS
 - B. SUBJ: Photo Intelligence Team Assignments
 - C. Subj: Photo Intelligence Team Assignments
 - D. SUBJ: Photo intelligence team assignments
9. Match the paragraphs in column A with their descriptions in column B. Use each description only once.

<u>Column A</u>	<u>Column B</u>
_____ 1. Purpose	a. Normally used to state specifics about how a job is to be performed.
_____ 2. Action	b. Brief summary of the directive and indicates the intended user.
_____ 3. Discussion	c. Assigns responsibility/delegates authority to ensure compliance with directive.
_____ 4. Procedure	d. Provides foundation for information that follows.
	e. Provides related but distinctly separate material at the end of a directive

Lesson 2 Self-Quiz

Questions (Continued)

10. A table of contents would be required on which of the following?
- A. Note
 - B. Classified instruction
 - C. Commandant Instruction
 - D. Directive with more than 25 pages
-

Answers to Self-Quiz

Question	Answer	Reference
1	C	Glossary (C-2)
2	D	Glossary (C-2)
3	D	Glossary (C-1)
4	A	2-2
5	C	2-2
6	B	2-3
7	B	2-5
8	A	2-5
9		2-6

Column A

Column B

- | | |
|---|--|
| <p><u> b </u> 1. Purpose</p> <p><u> c </u> 2. Action</p> <p><u> d </u> 3. Discussion</p> <p><u> a </u> 4. Procedure</p> | <p>a. Normally used to state specifics about how a job is to be performed.</p> <p>b. Brief summary of the directive and indicates the intended user.</p> <p>c. Assigns responsibility/delegates authority to ensure compliance with directive.</p> <p>d. Provides foundation for information that follows.</p> |
|---|--|

10	D	2-8
----	---	-----

Lesson 3

COMMUNICATIONS PLANS

Overview

Introduction

To effectively communicate, a shipboard communications plan must be properly prepared. Coordination between bridge, CIC, and radio personnel is required to have a useful shipboard communications plan.

Objectives

After completing this lesson, you will be able to:

- **DETERMINE** which frequencies must be guarded at all times aboard a Coast Guard vessel.
 - **DETERMINE** procedures to write a communications plan.
 - **LIST** the parts of a Frequency Plan Matrix.
-

References

The information contained in this lesson can be found in the following references

- Coast Guard Telecommunications Manual, COMDTINST M2000.3 (series)
 - Strike Warfare, Antisurface Ship Warfare, Intelligence, Electronic Warfare, and Command, Control and Communications Exercises, FXP-3 (series)
-

Performance Qualification

This lesson covers the following performance qualification for RD1 from the Enlisted Qualifications Manual:

B.6.01 – Prepare a communications plan for own ship in accordance with current OPTASK and OPORDER.

Required Radio Guards

Minimum Radio Guards for Cutters Under Way

On cutters with two or more watch standers continuously manning positions (WHECs/WAGBs), the minimum required guard is:

- Digital Selective Calling Channel 70 (normally guarded on the bridge)
- Distress and Calling, 2182 kHz (normally guarded on the bridge)
- International Air Distress/Civilian Air Distress 121.5 MHz
- Military Air Distress 243.0 MHz
- Channel 16 VHF 156.8 MHz (normally guarded on bridge)
- Channel 13 VHF 156.65 MHz (normally guarded on bridge)
- Command and Control Frequencies

On cutters with one watch stander continuously manning position (WMECs/TAGOS), the minimum required guard is:

- Digital Selective Calling Channel 70 (normally guarded on bridge)
- Distress and Calling, 2182 kHz (normally guarded on bridge)
- Channel 16 VHF 156.8 MHz (normally guarded on bridge)
- Channel 13 VHF 156.65 MHz (normally guarded on bridge)
- Command and Control Frequencies

Smaller cutters with no RDs assigned have similar requirements referenced in the Telecommunications Manual, COMDTINST M2000.3 (series).

Elements of Communications Plan

Primary Source The primary source for determining the required frequencies for an upcoming operation is the OPTASK Comms or Annex Kilo of the OORDER for the given operation.

Recommended Sections Though there is no standard format, the following sections are recommended for all communications plans:

- General
 - Mission
 - Message Handling
 - Spare Frequency List
 - COMSEC
 - Circuit Activation and Restoration
 - Task Organization and Call Signs
 - Distress Frequencies Guard Assignments
 - Communications Equipment Out of Commission
 - Frequency Plan Matrix
-

Recommended Format

General

This section explains the purpose and general operating requirements of the communications plan.

Example:

GENERAL

This communications plan provides instructions for communications operations during Operation Stay Underway commencing 01Dec00. External communications will be conducted in accordance with Annex Kilo to the Operation Stay Underway OPORDER:

COMEX: 01DEC00

FINEX: 05FEB01

OCE: CTU 44.5.1.1

Unit: USCGC UNDERWAY (WMEC 972)

TIME: plus five Romeo: All communications evolutions will be conducted in Zulu time.

Mission

Give a basic overview of the mission to be completed:

Example:

MISSION

USCGC UNDERWAY (WMEC 972) will depart home port 28 Nov 00 enroute the Operations Area to arrive on 01Dec00. USCGC UNDERWAY is tasked with conducting operations in the Operations Area under the operational control and guidance of CTU 44.5.1.1. The purpose of this operation is to conduct operations in the Operating Area. USCGC UNDERWAY's primary assignment is to Task Group (TG) 44.5.1.1 to support all Coast Guard missions during normal conditions. USCGC UNDERWAY is also assigned to Task Unit (TU) 43.2.9 in support of the defense of the Operations Area in case of attack. The secondary mission is to provide search and rescue as part of Operations Area defense forces.

Recommended Format

Message Handling

Explain the handling procedures for record message traffic, OTCIXS OPNOTEs and visual communications messages. Ensure you include infrared communication message procedures. The radio, CIC and visual communications doctrines for your cutter should be referenced. Other possible references are:

- Coast Guard Telecommunications Manual, COMDTINST M2000.3 (series)
- Naval Telecommunications Manual, NTP-4 (series)
- Annex Kilo to current OPORDER/OPTASK
- Naval Telecommunications Procedures Manual, NTP-3
- SCCS Unified Build Manual
- Commanding Officer's Standing Orders
- Basic Operational Communications Doctrine, NWP 6-01 (series)
- Communications Instructions - Visual Communications Procedures, ACP-130

Spare Frequency List

This section will include secondary and tertiary frequencies for all guarded frequencies, where available.

COMSEC

This section includes the Shipboard COMSEC procedures including BEADWINDOW and Imitative Communications Deception (ICD) Procedures.

Reference the following:

- Radio User Telephone Handbook (RUTH)
- Radiotelephone Users Manual (RUM)
- Communications Instructions – Radiotelephone Procedures, ACP 125
- Electronic Warfare Coordination, NWP 3-13.1.1

Also included in this section is a list of the challenge and reply key lists to be utilized during the operation.

Recommended Format

Circuit Activation and Restoration

This section lists the order in which circuit will be restored in case of a power loss or other condition that requires communications equipment to be shut down. Circuits should be activated/reactivated in order of tactical priority.

Task Organization and Call Signs

Task organization and call signs for all units expected in the theater of operations should be included in this enclosure. Line assignments should be used in lieu of actual call signs when using daily changing call signs. Include international call signs and pennant calls for visual communications.

Distress Frequency Guard Assignments

A list of the distress frequencies that will be monitored during the operation, who has the guard on that frequency, and SAR procedures can be included in this section.

Communications Equipment out of Commission

List all communications out of commission prior to the commencement of the operations. Include estimated time of repair (ETR) and impact on the mission.

Frequency Plan Matrix

Include the breakdown of which frequencies are being guarded, crypto requirements, etc., in an easy-to-read matrix. See sample matrix on next page.

Frequency Plan Matrix

Circuit Name	Frequency	Designator	Crypto	Equipment	Guard	EMCON /RSI
Military Air Distress	243.0 MHz	SAR123B	None	WSC #1 RHS-2 SPKR-3	Listen/CIC	A – X B – X C – X D – X
Channel 16 VHF	156.8 MHz	SAR234A	None	VHF#1 SPKR-2	Guard/Bridge	A – X B – X C – X D – X
International Distress and Calling	2182 kHz	SAR543C	None	HF #3 RHS-1 SPKR-1	Listen/CIC	A – X B – X C – X D – X
Battle Group Tasking	222.2	TA123Z	USKAT- 1234 KYB-6 #1	WSC #2 RHS-4 SPKR-7	Copy/CIC	A – X B – X C – X D – X

Recommended Format

Signatures

A communications plan should be prepared by the respective division chiefs (RDIC, TCIC, and QMIC), submitted to the divisions officers (CICO, COMMO, and ANAV) and department head (operations officer), and approved by the commanding officer.

Classification

Communications plans must be classified at the level of the material from which the plan was derived. Referencing certain material, instead of including it in the plan, may allow the plan to be kept at a lower level of classification and therefore made more user-friendly. However, a communications plan should not be just a list of references.

Lesson 3 Self-Quiz

Questions

1. Place an "X" next to the frequencies that are required to be guarded on a WMEC under way.

_____ Channel 13 VHF

_____ Military Air Distress, 243.0 MHz

_____ SAR working frequency, 2670 kHz

_____ Command and Control frequencies

_____ Channel 16 VHF

_____ Channel 21A VHF

2. What is the PRIMARY source for required Command and Control frequencies for a given operation?

3. Where is the standard format for writing a communications plan found?

A. FXP-3
B. There is no standard format
C. Coast Guard Telecommunications Manual
D. Annex Kilo to COMLANTAREA SOP

4. The COMSEC section to a ship-wide communications plan should contain all of the following EXCEPT _____.

A. SAR procedures
B. BEADWINDOW procedures
C. challenge and reply key lists
D. Imitative Communications Deception procedures

5. List SEVEN items that should be included in a Frequency Matrix Plan.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

Answers to Self-Quiz

Question		Answer	Reference
1	<input checked="" type="checkbox"/> X <input type="checkbox"/>	Channel 13 VHF	3-2
	<input type="checkbox"/>	Military Air Distress, 243.0 MHz	
	<input type="checkbox"/>	SAR working frequency, 2670 kHz	
	<input checked="" type="checkbox"/> X <input type="checkbox"/>	Command and Control frequencies	
	<input checked="" type="checkbox"/> X <input type="checkbox"/>	Channel 16 VHF	
	<input type="checkbox"/>	Channel 21A VHF	
2		OPTASK Comms or Annex Kilo of the OPORDER	3-3
3		B	3-3
4		A	3-5
5	a.	Circuit name	3-7
	b.	Frequency	
	c.	Designator	
	d.	Crypto	
	e.	Equipment	
	f.	Guard	
	g.	EMCON/RSI	

Lesson 4

SEARCH AND RESCUE

Overview

Introduction

As a radarman, you should be familiar with search and rescue (SAR) terminology, datum, search planning procedures, and search planning and communication requirements. This course is designed to give you a basic knowledge for these subjects. The National SAR manual, local procedures, and unit instructions should be used to gain a full understanding of SAR in your area of responsibility (AOR).

Objectives

After completing this lesson, you will be able to:

- **DEFINE** datum.
 - **STATE** the best source of information on total water current.
 - **STATE** the forces involved in determining total water current.
 - **DEFINE** leeway.
 - **STATE** the proper size search area for a coastal model search.
 - **DEFINE** track spacing.
 - **DETERMINE** uncorrected sweep width.
 - **STATE** the three correction factors you use to determine corrected sweep width.
 - **CALCULATE** corrected sweep width.
 - **STATE** the correct formula for determining coverage factor.
 - **DETERMINE** probability of detection.
 - **STATE** the items you should consider when selecting a search pattern.
 - **IDENTIFY** the meaning of search pattern letter designators.
 - **STATE** the characteristics for each of the following search pattern types:
 - Trackline
 - Parallel Track
 - Creeping Line
 - Expanding Square
 - Sector
 - **SELECT** the required time interval for SITREP submission.
 - **SELECT** the assignment responsible for development of the Search Action Plan.
-

Overview

References

The information contained in this lesson can be found in the following references:

National Search and Rescue Manual, Volume I, COMDTINST M16120.5

National Search and Rescue Manual, Volume II, COMDTINST M16120.6

Coast Guard Addendum to the National Search and Rescue Manual, COMDTINST M16130.2 (series)

Performance Qualifications

This lesson covers the following performance qualifications for RD1 from the Enlisted Qualifications Manual, COMDTINST M1414.8 (series):

- Construct a search area and pattern given datum using TDAs in accordance with the Unified Build Users Manual.
-

Datum

Introduction

Datum is the most probable location of a search object, corrected for movement over time. To calculate datum, all of the forces affecting the movement of the water plus the effect of the wind on the search object must be considered.

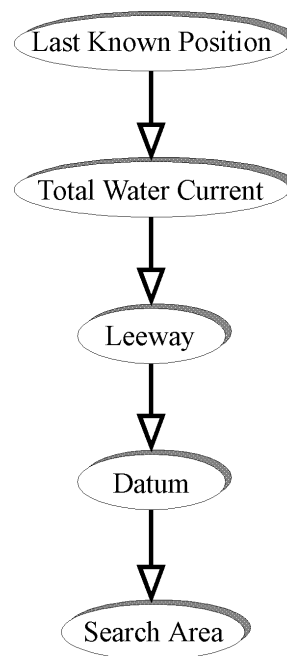
Determining Datum

Determining datum begins with the reported or most likely position of the incident. Unless the distressed craft is immobilized (anchored or aground), possible movement of the search object should be accounted for when calculating datum and the search area surrounding datum. To locate datum, two major forces need to be considered:

- Total water current
- Leeway

Flow Chart

The following flowchart demonstrates the series of steps used to determine both datum and the resulting search area:



Total Water Current

Introduction

The first information received concerning a distressed or overdue unit will assist you in determining the last known position of the target. From that position, you must consider all the forces affecting the water movement to ensure you account for the target's travel with the current.

Total water current (TWC) is the sum of all of the water currents that might be acting upon a search object in any given locality.

Datum Marker Buoy

The best information on total water current is obtained from a series of datum marker buoys (DMBs) inserted in an appropriate grid pattern around the last known position of the target. These buoys may be specially made radio transmitting devices which cost thousands of dollars and are designed to drift with the current while sending out a homing signal so they can be easily relocated. Though DMBs may be complex, they may be as simple as a weighted down personal floatation device (PFD) which is inserted by a utility boat and frequently relocated to record the total water current. If DMB information is not available, then each of the forces affecting water movement must be vectorally added to compute a resultant total water current vector.

Self-Locating Buoy

The best DMBs are complex enough to send a signal direct to a satellite that tracks their movements periodically and thus there is no need for relocation. This form of buoy is called a self-locating datum marker buoy (SLDMB).

Currents

The following types of water current can have an effect upon search and rescue planning and operations:

- Sea current
- Tidal current
- Wind current
- Lake current
- River current

For some, such as tidal currents, there is reasonably good information available on which to base your planning decisions. For others, such as lake currents, it is necessary for the SAR planner to build up a personal bank of local knowledge.

Total Water Current

Sea Current

Sea current is the main large-scale flow of ocean waters. Sea current is assumed to exist in the open ocean when water depth is greater than 300 feet. There are numerous sources of information which provide the direction and magnitude of sea current in various locations. The following are examples:

- Naval Oceanographic Office Special Publication (NOOSP 1400)
 - Pilot Charts
 - CASP (computer-assisted search planning)
-

Tidal Current

Tidal currents, which are mostly within 3 miles of the shoreline and within bays and sounds, are one of the biggest contributing factors to total water current in the coastal/inland environment. Tidal currents change in direction and velocity as the tide rises and falls. The direction and velocity of these currents in any area may be obtained by consulting current tidal tables.

Wind Current

Wind current is generated by the wind acting on the water surface over a period of time. As wind blows over water, it causes horizontal water movement that grows with wind speed and duration. The depth of the water must be at least 100 feet, and the uninterrupted flow of the wind over the water (fetch) must be at least 20 NM for wind current to be a factor in drift calculations. Wind as far back as 48 hours will affect present water currents. You can derive the resultant wind current from calculations involving the wind current tables in chapter 5 of the National SAR Manual, Volume I. These tables provide factors for determining the actual current speed and direction, taking the Coriolis effect into consideration.

Lake and River Currents

Other water currents affecting search objects are usually difficult to calculate. Lake current information usually comes from local knowledge, charts, tables, or computer models. A current in a large lake can vary with season, weather, or time of day. River current information is usually obtained from published data, local knowledge, or direct observation. The Army Corps of Engineers is the primary source of information on river currents.

Leeway

Introduction

Leeway (LW) relates to the movement of an object through the water due to the pushing force of the wind. Most marine craft have a portion of the hull and superstructure exposed above the water. The more exposed area the object has, the greater the wind force on the object. This wind force is countered by drag on the underwater surface of the object.

Leeway speed and divergence are based on the physical characteristics of the search object. The more accurate description of the search object you can obtain during the awareness/initial actions/planning stages of a SAR incident, the better your calculations can be.

Note: Completely submerged objects and persons floating in the water are assumed to have no leeway.

Speed

Leeway speed can be estimated using either the leeway speed graph, figure 5-5 on page 5-7, NSM Volume I, or the formulas listed on page 5-6. Leeway tables and graphs are also located on pages 4-1 and 4-2 of the NSM Volume II.

Direction

Leeway direction is subject to large variations. However, during the first few hours of drift it can be assumed to be downwind. After 6 hours of drift in coastal or enclosed waters and 4 hours in the open ocean, a divergence angle is applied to the reciprocal of the average surface wind direction. Page 5-7 NSM Volume I and the leeway speed and divergence formulas listed in this lesson discuss the maximum angles off downwind for various search objects.

Average Surface Winds (ASW)

Calculations for leeway use the actual surface winds blowing on the search object during the period from the last known position/start point (LKP/SP) to datum. These winds might be reported winds, forecast winds, or an average of all the wind reports for the period of drift.

Leeway

Diagram

The following table is a combination leeway speed and leeway divergence table. U = wind speed.

Search Target Type	Leeway Speed Formula	Leeway Divergence Angle
Light displacement cabin cruisers, outboards, rubber rafts, etc. (without drogue)	$0.07U + 0.04$	+/- 35
Light displacement cabin cruisers, outboards, rubber rafts, etc. (with drogue)	$0.05U - 0.12$	+/- 35
Large cabin cruisers	$0.05U$	+/- 60
Medium displacement sailboats, fishing vessels, e.g., trawlers, trollers, tuna boats, etc.	$0.04U$	+/- 60
Heavy displacement deep draft sailing vessels	$0.03U$	+/- 45
Surfboards	$0.02U$	+/- 35

Note:

1. Do not use these formulas for wind speed values below 5 knots.
 2. Rafts with canopies have leeway speeds 20% faster than rafts without.
 3. Rafts with ballast buckets have leeway speeds 20% slower than rafts without.
 4. Circular rafts have a maximum leeway divergent angle of +/- 15 degrees.
-

Leeway

Sample Problem

Find the leeway speed and direction for an 18 ft outboard (no drogue) adrift for 3 hours with a wind of 320° at 20 knots.

Select the correct formula: $.07U + .04$

$$\begin{aligned}\text{Put wind speed in place of "U":} &= .07(20) + .04 \\ &= 1.40 + .04 \\ &= 1.44 \text{ knots}\end{aligned}$$

$1.44 \text{ knots} \times 3 \text{ hrs} = 4.32 \text{ NM}$ This is the distance the outboard would have traveled from its last known position if there were no total water current.

The direction is obtained from taking the reciprocal of the wind direction, $320^\circ - 180^\circ = 140^\circ$ (since a wind blowing from 320° would push our outboard toward 140°).

Thus we should expect to locate our missing outboard 4.3 NM at 140° from the end of the total water current drift line.

Note: If the wind had been blowing for more than 4 hours in the ocean environment or 6 hours in the coastal environment, we would have to apply a divergent angle. In this case, the divergent angle of $\pm 35^\circ$ would be applied to 140° .

$$140^\circ - 35^\circ = 105^\circ$$

$$\text{and } 140^\circ + 35^\circ = 175^\circ$$

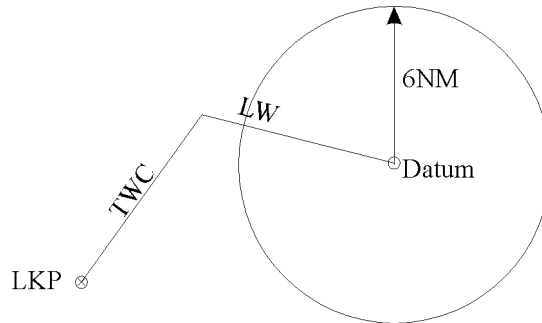
We would then expect to locate the outboard between 105° and 175° from the end of the total water current drift line at 4.3 NM.

Search Area

Coastal Searches

Once datum is located, a search area must be constructed and centered about datum. When response times in the coastal environment are rapid, 6 hours or less, the search area is defined as a circle with a 6 NM radius centered about datum. Since it is difficult to assign a circular search area, a square tangent to the circle is constructed and thus becomes the search area.

Sample Coastal Model

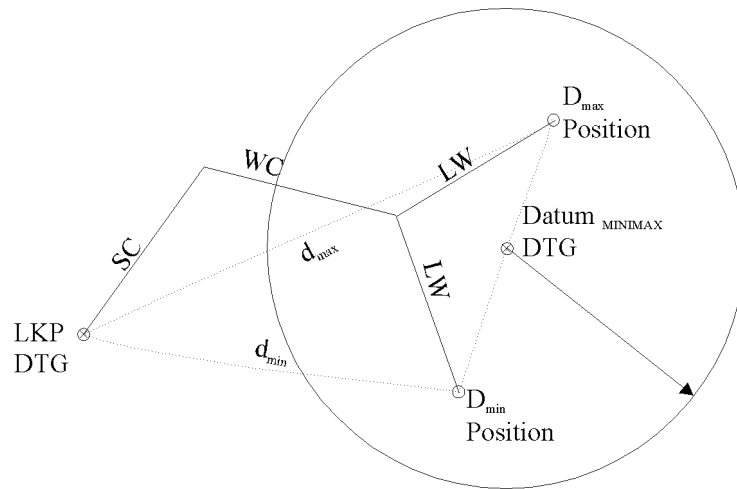


Ocean Searches

For searches in the open ocean with 4 hours of drift or less, the search radius is equal to the combined navigational errors of the last known position and the SRU navigation error as derived from table 5-2 and table 5-3 on page 5-13 of the NSM Volume I. In addition, a safety factor from table 5-4 on page 5-14 of the NSM Volume I is applied.

Search Area

Sample Ocean Model



All other searches will have as its search radius a factor equal to approximately 30 percent of the total drift distance (from LKP to datum), plus the navigation errors and safety factor.

Worksheets

The proper method for determining datum and the appropriate search area is the completion of a datum and search area worksheet. These worksheets can be found on the automated manual solution (AMS) section of the Geographic Display Operations Computer (GDOC) or from appendix H of the Coast Guard Addendum to the National SAR Manual, COMDTINST M16130.2 (series).

Variables

Introduction

Many factors influence detection capability during a search, and these factors are seldom identical in any two situations. The next several pages will focus on those factors, which can be predicted to some extent.

Variable Factors

The goal of search planning is to cover as much of the search area as possible with reasonable probability of detection (POD). Many factors influence detection capability during a search, and these factors are seldom identical in any two situations. The relative influence of these factors can be predicted to some extent. If the SAR mission coordinator (SMC) is aware of them, the search planning and search operation will be more effective.

Variables Formula $A = VST$

When conditions will not allow a given area to be searched with a specific track spacing, in a specific period of time, or at a specific speed, adjustments must be made. The formula, $A = VST$, permits these adjustments to be made for each of these components, provided the area is a square or a rectangle. The components of the formula are:

A = Area (in square nautical miles)

V = Velocity (in knots)

S = Track Spacing (in nautical miles)

T = Time to Complete Search (in hours)

Each of these components is a variable that can be modified to accomplish the search.

Note: Although track spacing, S , may be modified, remember that if you increase S , you automatically decrease POD.

Track Spacing (S)

The distance between two adjacent parallel search legs is known as track spacing. The desired track spacing is a function of detection capability. The more difficult the target is to detect due to weather or the size of the search object, the smaller the track spacing should be.

Sweep Width

Uncorrected Sweep Width (WU)

Uncorrected sweep width is a distance in nautical miles used for measuring detection capability. The distance is such that the probability of detecting the target outside that range is equal to the probability of missing the target inside that range.

Sweep Width Tables

The sweep width tables were developed by the CG Research and Development Center and are based on extensive test data. The uncorrected daylight sweep width tables are located in the NSM Volume II, tables 4-4 through 4-10. The following is an excerpt from these tables:

Fixed wing searching @ 1,000 ft for . . .	Visibility (NM)						
	1	3	5	10	15	20	30
Person in water	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Raft 1 person	0.3	0.7	0.9	1.2	1.4	1.4	1.4
Raft 4 person	0.3	1.0	1.3	1.8	2.1	2.3	2.3
Power boat < 15 ft	0.4	1.0	1.3	1.7	1.8	2.0	2.0
Power boat 15-25 ft	0.5	1.7	2.5	3.7	4.4	5.0	5.0
Power boat 25-40 ft	0.5	2.2	3.4	5.4	6.8	7.8	9.3
Sail boat 15 ft	0.5	1.6	2.3	3.3	4.0	4.4	4.4
Sail boat 20 ft	0.5	1.8	2.7	4.2	5.1	5.7	5.7

Note: Correction factors must be applied.

Practice

Locate the table for the type of SRU (fixed wing, helicopter, vessel, or small boat). For aircraft, enter the column for the appropriate altitude and visibility. For surface craft, enter the column for the appropriate visibility. Read down this column until the target type that most closely describes your search object is found. This is the **uncorrected** sweep width distance. Interpolate if necessary.

Maritime Visual Sweep Width

Procedure

Use this procedure to determine uncorrected sweep width distance.

Step	Action	
1	Locate the table for the type of SRU (e.g., fixed wing, helicopter, vessel, small boat).	
	IF . . .	THEN enter the column for . . .
	Aircraft	Correct altitude and visibility
	Surface craft	Appropriate size vessel and Visibility
2	Read down the column and find the target type which most closely describes your search object.	
3	Interpolate as necessary.	
4	Apply the correction factors. (See page 4-8, NSM Volume II.)	

Correction Factors

Introduction

The uncorrected sweep width must be adjusted for the following:

- Weather
 - Fatigue
 - Aircraft speed
-

Weather Correction (fW)

Weather has an impact on search effectiveness. For small targets the reduction in effectiveness is substantial. Use the table below to determine the weather correction factor. If values are in different columns, use the higher column.

Target Type	Calm Conditions	Winds \geq 15 kts Seas 2-3 ft	Winds \geq 25 kts Seas \geq 4 ft
PIW or $<$ 30 ft Length	N/A	0.5	0.25
Other Targets	N/A	0.9	0.9

Fatigue Correction (ff)

These sweep width tables have been adjusted for a "normal" amount of crew fatigue. If feedback from on scene SRUs indicated that search crews were excessively fatigued, sweep width values should be reduced by 10% (multiplied by 0.9).

Correction Factors

Search Aircraft Speed Correction (fV) Enter the speed correction table with aircraft type (fixed wing or helicopter) and the speed flown. Read down the column to the target type. This value is the speed correction. Interpolate as required. There is no speed correction for surface SRUs.

Search Objective	Fixed Wing Speed (Knots)			Helicopter Speed (Knots)			
	150 or less	180	210	060	090	120	140
Person in Water	1.2	1.0	0.9	1.5	1.0	0.8	0.7
Raft - 1-4 Person	1.1	1.0	0.9	1.3	1.0	0.9	0.8
Raft - 6-25 Person	1.1	1.0	0.9	1.2	1.0	0.9	0.8
Power Boat - up to 25 ft	1.1	1.0	0.9	1.2	1.0	0.9	0.8
Power Boat - 25-40 ft	1.1	1.0	0.9	1.1	1.0	0.9	0.9
Power Boat - 40-65 ft	1.1	1.0	1.0	1.1	1.0	0.9	0.9
Sail Boat - up tp 25 ft	1.1	1.0	0.9	1.2	1.0	0.9	0.9
Sail Boat - 30-50 ft	1.1	1.0	1.0	1.1	1.0	0.9	0.9
Sail Boat - 65-90 ft	1.1	1.0	1.0	1.1	1.0	1.0	0.9
Ship (over 90 ft)	1.0	1.0	1.0	1.1	1.0	1.0	0.9

Corrected Sweep Width (W)

Corrected Sweep Width (W)

Use the correction factors to figure corrected sweep width (W) which is calculated as follows:

$$W = W_u \times f_w \times f_f \times f_v$$

Sweep Width Example

A C-130 flown at 1,000 ft at a speed of 150 knots is searching for a 26-ft powerboat. Winds are 20 knots with 3-ft seas. Visibility is 20 miles. The aircraft commander determined that his crew was unusually fatigued.

Step	Action
1	From the FIXED WING sweep width tables, find the column for 1,000 ft altitude and 20-mile visibility (page 4-5 NSM Vol II). Read down this column to the 26-ft powerboat row to obtain an uncorrected value of 7.8. Note: If the exact size of your vessel is not on the table, go to the closest number.
2	From the weather correction table, use the column for WINDS > 15 KTS, SEAS 2-3 FT and the small target row to obtain a weather correction factor of 0.5.
3	Since the aircraft commander determined his crew was fatigued, use a fatigue correction factor of 0.9.
4	From the Search Aircraft Craft Speed Correction table, find the column for FIXED WING speeds of 150 kts. Read down this column to the 26-ft powerboat row to obtain a speed correction factor of 1.1
5	Multiply the uncorrected sweep width from step 1 by the three corrections to obtain the final sweep width. $W = (7.8 \times .5 \times .9 \times 1.1) = 3.86$

Visual Detection Aids

Introduction

Corrected sweep widths for visual detection aids are covered in NSM, Volume II, Tables 4-13, 4-13a, 4-14, 4-14a, and 4-14b.

Electronic Sweep Widths

Radar

Sweep width depends on the type of radar, height of eye to the horizon, environmental clutter and noise, radar cross section of the target, radar beam refraction due to atmospheric pressure, and sensor operator ability. Sea conditions and the manufacturer's detection performance estimates should be used when available.

Tables

Radar sweep widths are contained in NSM, Volume I, Tables 5-10 through 5-13; Volume II, Tables 4-15 through 4-24.

HC-130 AN/APS-137 radar sweep widths are located in the NSM Addendum page 2-F-21.

Night Vision Goggles

Guidance for night vision goggles (NVGs) is found in chapter 2 of the Coast Guard Addendum, page 2-F-24. Use of NVGs aboard small boats (UTBs) is not recommended because the lookouts are prone to seasickness when using them.

Coverage Factor (C) and POD

Introduction

Coverage factor is:

- A measure of search effectiveness or quality.
- An intermediate calculation when developing probability of detection.
- Ratio of sweep width to track spacing.

Example: $C = W/S$

W is sweep width, S is track spacing.

Given a (W) of 3.1 and an (S) of 2.0, the coverage factor is 1.55.

$$1.55 = 3.1 / 2.0$$

Probability of Detection (POD)

POD is the probability the search object will be detected provided it is in the area searched. It measures search results.

After determining coverage factor, enter the graph "Maritime Probability of Detection" in NSM, Volume II, chapter 4, pg. 4-14. On the vertical axis corresponding to C, move up the line until it intersects with the "Any Single Search" curve. Read POD percentage from the horizontal axis.

Example:

If $C = 1.55$, then $POD = 94\%$

If $C = 0.40$, then $POD = 38\%$

Cumulative POD

Cumulative POD (PC)

Cumulative POD is the likelihood of finding a target as determined from the mean coverage factor of two or more searches when the same drifted water is searched. Cumulative POD is used for repeated searches of the search area for the same search object.

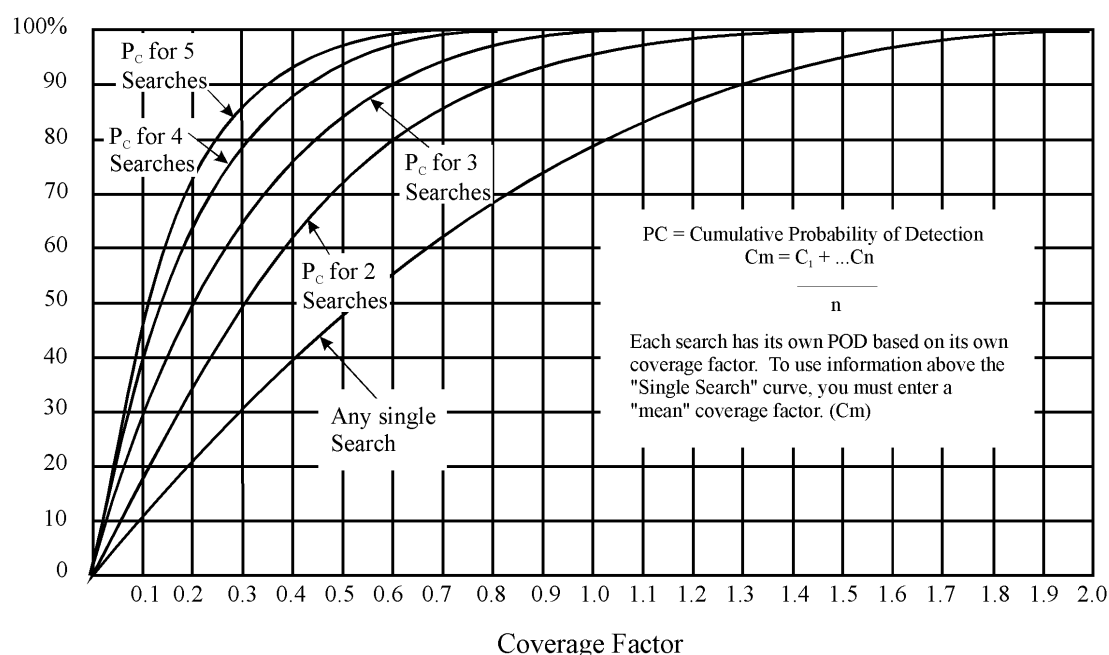
Example

In the example below, the same water was searched first with a coverage factor of 0.4 and then again with a coverage factor of 1.55.

Example: $C_m = C_1 + C_2/N = 0.4 + 1.55/2$

If $C_m = .975$, then PC for 2 searches = 92 %

POD Table



Note: Ensure you use the "2 Searches Curve" for cumulative searches involving a total of 2 searches and the "3 Searches Curve" for cumulative POD with searches involving a total of 3 searches. This should continue up to the fifth search; then you must use the fifth search for 5 or more searches. Remember each individual search has its own POD and is obtained from the "Any Single Search Curve."

Search Patterns

Introduction

No matter how well the search is planned, after finding datum and determining a search area, everything depends upon what type of search pattern is selected and how well that search is conducted.

Search Pattern Factors

There are many factors to consider involving a search. These factors help determine which search pattern would be the most successful for each SAR case. No matter how well the search is planned, after finding datum and determining the search area, success may depend on how well the search is conducted. Most planning will be done by the RCC controller or the Group/Station OOD designated as the SMC (SAR mission coordinator). Once the search area has been calculated, it's up to the search planner to ensure the pattern type matches the needs of the case scenario.

Selecting a Search Pattern

Below is a list of items to consider when selecting an appropriate search pattern:

- Accuracy of datum
 - Size and detectability of the search object
 - Size and shape of the search area
 - Time available for searching
 - Number and type of SRUs
 - En route and on scene weather
 - Navigational ability of the SRUs
 - Desired POD
-

Search Patterns Letter Designators

Introduction

Search patterns are generally referred to by letter designators.

First Letter

The first letter indicates search pattern type:

- Trackline T
 - Parallel P
 - Creeping Line C
 - Square S
 - Sector V
 - Barrier B
-

Second Letter

The second letter indicates the number of SRUs in the same search area:

- Single-Unit S
 - Multi-Unit M
-

Third Letter

The third letter indicates amplifying/supplementary information:

- Radar or Return Search R
 - Coordinated C
 - Loran L
 - Aural A
 - Non-Return Search N
 - Drift Compensated D
-

Example

The following example describes the meaning of the designator TSR.

IF letter designation is . . .	THEN . . .
TSR	T = trackline S = single-unit R = radar or return search

Descriptions and Diagrams

Introduction

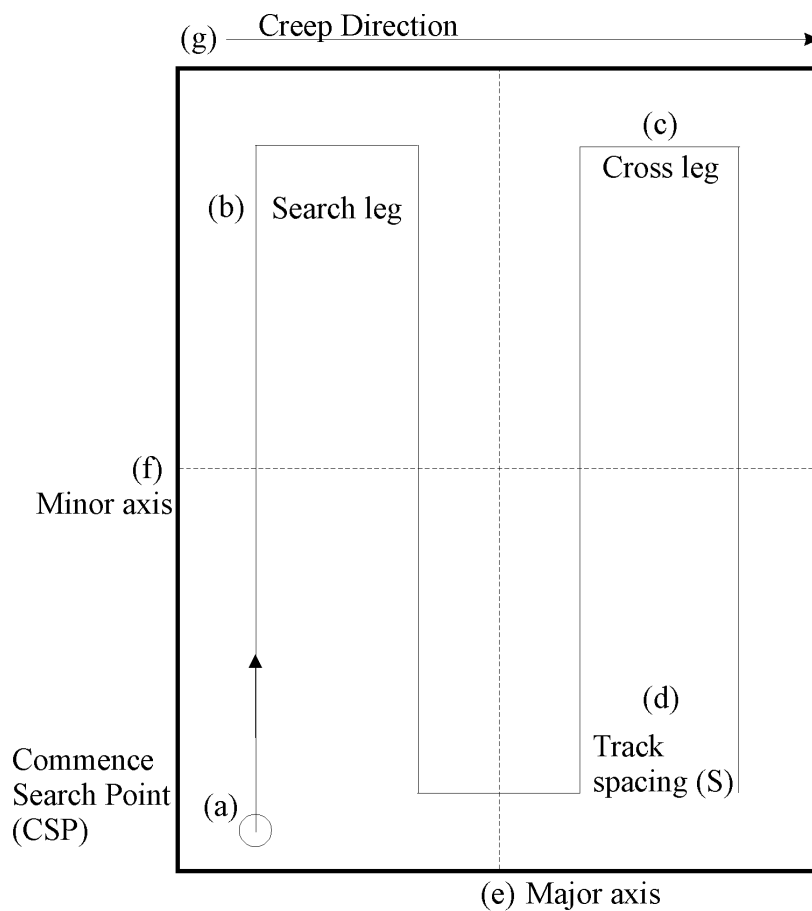
If it's necessary to conduct a search, use the following descriptions and diagrams as a guide/reference for pattern selection.

Search Pattern Terminology

The following is terminology used for a generic search pattern:

- (a) Commence search point (CSP)
 - (b) Search leg
 - (c) Cross leg
 - (d) Track spacing (S)
 - (e) Search area major axis
 - (f) Search area minor axis
 - (g) Creep direction
-

Diagram



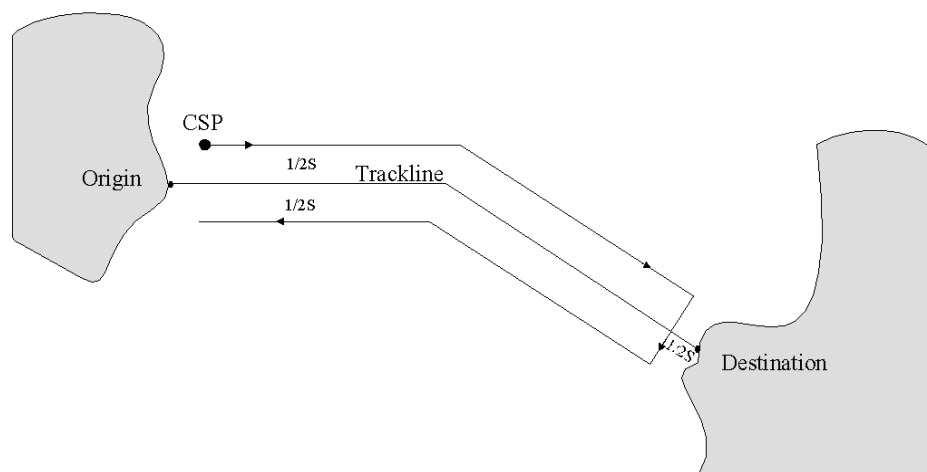
Trackline Search Pattern

Introduction

A trackline (T) search pattern is used when the only information available is the search target's known or projected trackline. This search pattern is usually the first search action since it is assumed that the target is near track and will be easily seen or will signal the SRU. Searching a datum line (intended trackline corrected for drift) should be evaluated as it can be a return or nonreturning pattern. If a single-unit nonreturn (TSN) is conducted, the SRU searches down the trackline or datum line. For a single-unit return pattern (TSR), offset the search legs one-half track space (S) either side of the track/datum line.

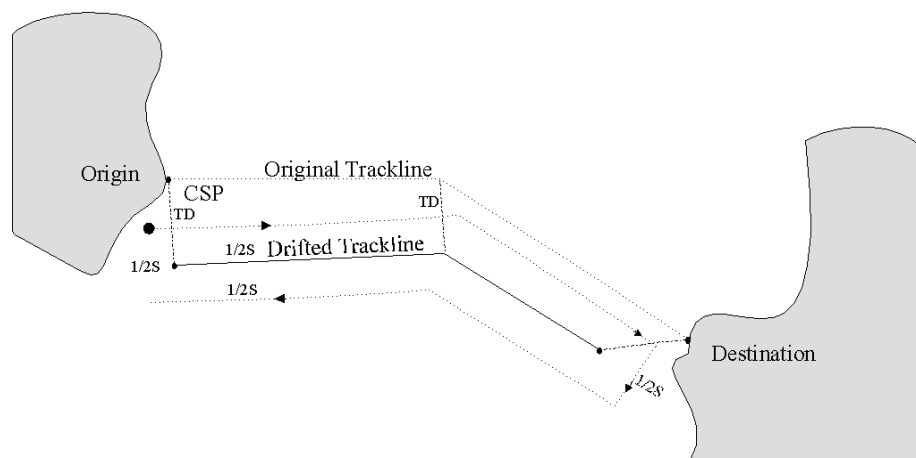
Diagram

This diagram shows the TSR original trackline.



Diagram

This diagram shows the TSR drifted trackline.



Parallel Search Pattern

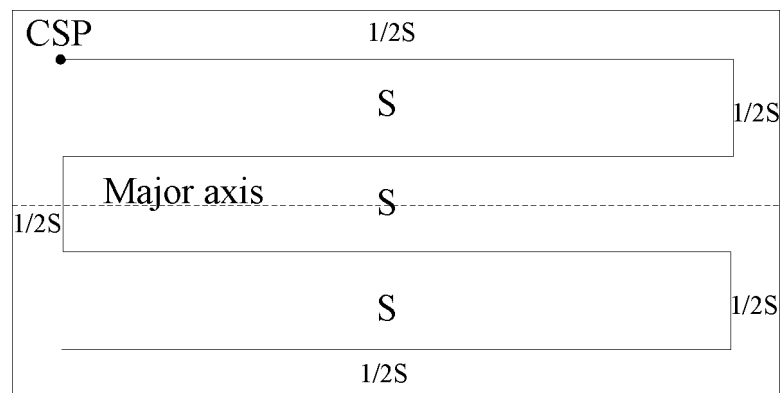
Introduction

A parallel (P) search pattern should be used when the search area is large, there is equal probability of the target being anywhere in the search area, datum information is fair, and uniform coverage is desired throughout the area. The pattern may be used when the degree of detection may have an equal probability of being anywhere in the search area.

The search legs are parallel to the search area's major axis (longest side oriented down the drift line). Commence search point (CSP) is located one-half track space inside the search area in the specified corner.

Diagram

This diagram shows the parallel pattern.



Creeping Line Search Pattern

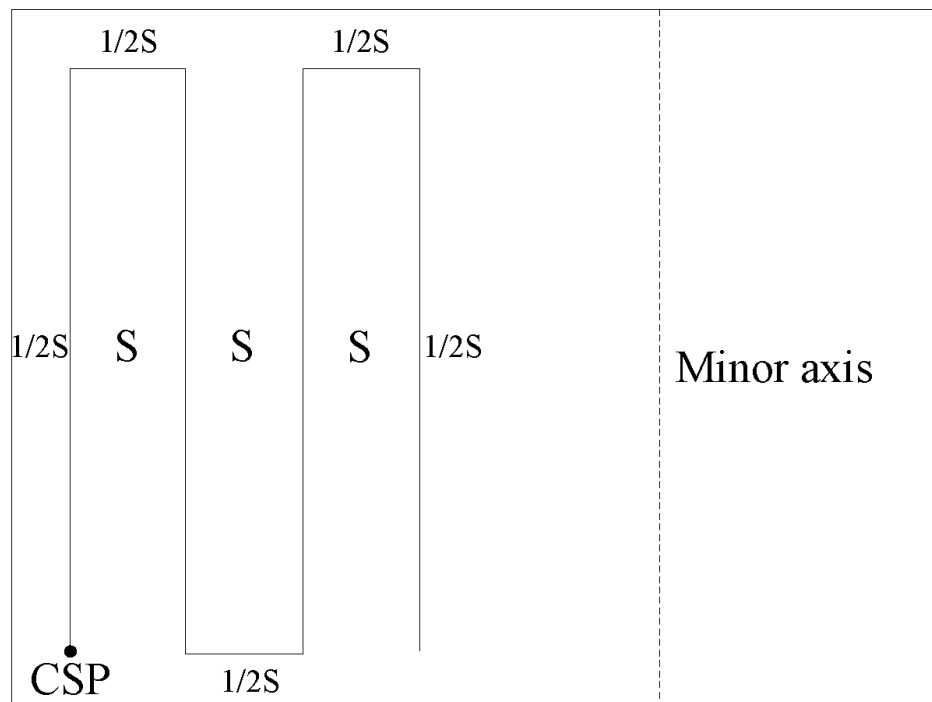
Introduction

A creeping line (C) search pattern is used when the search area is large, uniform coverage is desired, datum information is fair, and there is more chance of the target being in one end of the search area than the other.

The search legs are parallel to the search area's minor axis (shortest side of the search area or 90° off of the major axis).

Diagram

This diagram shows the creeping line pattern.



Square Search Pattern

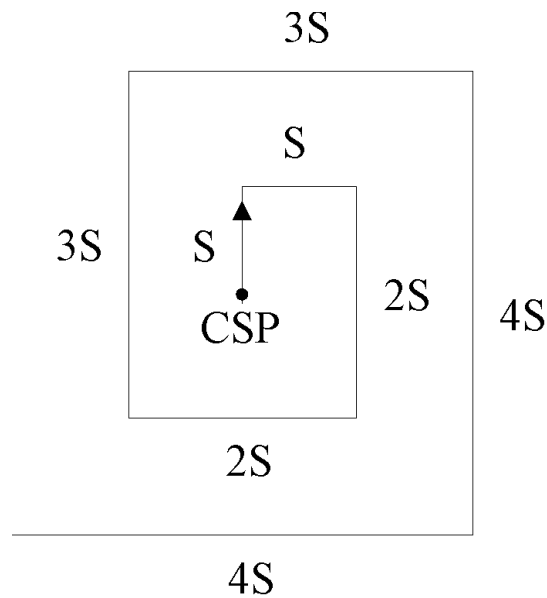
Introduction

A square (S) search pattern is used when datum is established within close limits and uniform coverage is desired. The first leg is usually oriented downdrift (if it is not practical to search the first leg downdrift, then another first leg direction may be used). All turns are 90° to the right and a second search is performed by shifting the pattern 45° to the right.

Diagram

This diagram shows the square search pattern.

S = track spacing



Sector Search Pattern

Introduction

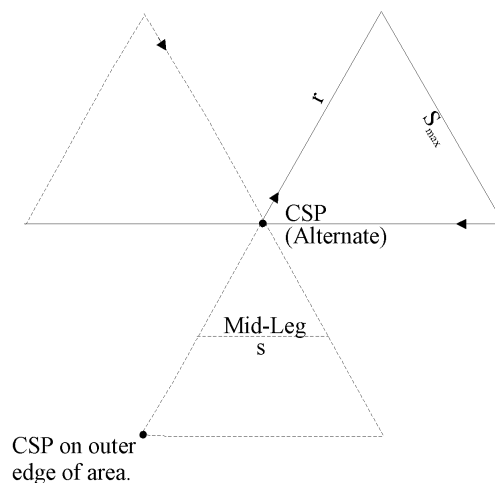
A sector (V) search pattern is used when datum is established with a high degree of confidence and the target is difficult to detect. The search unit passes through datum several times, each time increasing the chances of finding the target. The pattern resembles the spokes of a wheel, with the center of the wheel at datum. It is the only pattern with a circular area of coverage. The datum may be marked with a floating object such as a DMB. By marking the center of the search pattern, the SRU has a chance to check its navigation each time the SRU passes near the center of the search pattern. A 60°-sector search is normally used which consists of nine equal legs, each leg having a length equal to the radius of the search area. The first leg is usually downdrift. Although the center of the search area is covered very well, the outer limits of the area are not covered as well.

Second Search

If you complete a first search or second search of the sector search pattern with no results, consider using another pattern, i.e., square or parallel for more uniform area coverage. If a second sector search is performed, shift the pattern 30° to the right. For coverage factor and POD calculations, the track spacing of a sector search is considered to be one-half the radius.

Diagram

This diagram shows the sector search pattern.



Sector Search Calculations

1. To determine the distance traveled in a search, multiply the radius (r) by 9. Total trackline miles = $9r$.
 2. To determine the total time for a search, divide the total trackline miles by the SRU's search speed.
-

Barrier Search Pattern

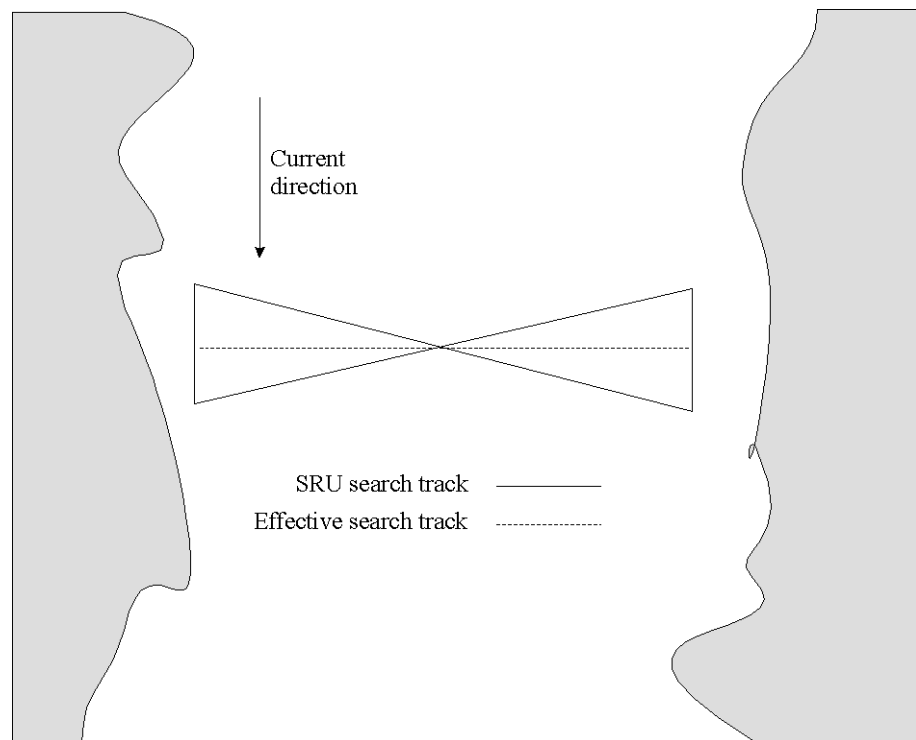
Introduction

A barrier (B) search pattern is used in an area where a strong current exists. The search area lies along the path of the current. There are three versions of this pattern:

- Advancing
- Stationary
- Retreating

Diagram

In this diagram of the stationary barrier pattern, the current carries the water past the search barrier. This search is similar to a creeping line pattern except the area is moving past the SRU rather than the SRU moving through the search area.



SAR Mission Messages

Overview

There are several different types of messages that are employed by SAR units during the prosecution of a SAR case. These may include search action plans, rescue action plans, situation reports (SITREPs), and all ship broadcasts. SAR mission messages typically follow a prescribed format. The format ensures that all critical items of information are contained within the message. It also assists the receiving station in copying the traffic, since preprinted blank message forms may be utilized to record the incoming communication.

SITREPs

SITREPs are examples of one type of SAR mission message and are used by the OSC to keep the SMC informed of on scene mission progress and conditions. SITREPs should be submitted as soon as details of a case become clear and at least every 4 hours during operations. SITREP messages typically contain the following information. As you read this, refer to the sample on the next page.

- SITREP Number: This data is typically placed on the message's subject line. Information sent includes a short case identifier, a sequential SITREP number, and the emergency phase classification.
 - Situation: A description of the case, relevant conditions, and the distressed craft and personnel.
 - Action Taken: A concise report of all actions taken since the last SITREP.
 - Future Plans: A description of actions planned for future execution. May include requests and/or recommendations for additional assistance or resources.
 - Ampn Info: Any amplifying information that should be passed.
 - Case Status: Sent only on the final SITREP to indicate that the case is closed or that the active search has been suspended pending further developments. Case numbers are listed in this section.
-

SAR Mission Messages

Sample SITREP The following is a sample of a typical SITREP.

O 222345Z JAN 01

FM USCGC POINT BROWER

TO COMCOGARDGRU SAN DIEGO CA

BT

UNCLAS //N16130//

SUBJ: DISTRESS SITREP ONE-F/V GENERAL LEE AGROUND - PT LOMA

PERIOD: 222158Z JAN 01 TO 222237Z JAN 01

1. SITUATION:

A. ORIG ON SCENE. ALL 3 POB RECOVERED. NO INJURIES.

B. NOTIFICATION: L/L CALL TO GRU FM MR. JOE BLOCK (555-1212). INIT RPT
CONFIRMED WITH VSLs IN VIC VIA VHF-FM.

C. GRU RCVD INIT RPT AND DIRECTED ORIG TO RESPOND. ORIG DIVERTED.
ONCE O/S LAUNCHED RHI AND RECOVERED ALL POB. POB XFERRED TO PT BROWER IN
GOOD CONDITION. VSL PRESENTLY AGROUND IN THE SURF AT PT LOMA.

D. DESC: F/V GENERAL LEE; 80FT LOA, WOOD HULL, DOC NR 613542, H/P SAN
DIEGO.

E. POB INFO: O/O; MR. JOHN STENNIS, MR. ALFRED E. NEUMAN, MS. JEAN
KIRKPATRICK

F. O/S WX: WIND SW/12KTS, SEAS S/7FT, SURF S/12FT, VIS 15, CEILING OVC AT
1500FT.

2. ACTION TAKEN:

A. 222200Z: DIRECTED BY GRU SAN DIEGO TO DIVERT.

B. 2202Z: ENR PT LOMA..

C. 2220Z: O/S, LAUNCHED RHI.

D. 2224Z: RHI RECOVERED ALL POB.

E. 2237Z: XFERRED ALL SURVIVORS ABOARD PT BROWER IN GOOD
CONDITION. NO OTHER POB.

3. FUTURE PLANS/RECOMMENDATIONS:

A. CG 41477 ENR TO XFER POB ASHORE.

B. UNODIR INTEND TO REMOVE SNV WITH TOWLINE.

4. AMPN INFO:

A. CASE INFO: MASTER STATED AUTOHELM FAILED AND COULD NOT BE
DISENGAGED CAUSING SNV TO GROUND. VSL HAS CURRENT CFVS DECAL.

B. RESULTS OF BOARDING: PENDS STABILIZING VSL.

C. ATON: ALL ATON APPEARS TO BE WATCHING PROPERLY.

D. POLLUTION: SNV CURRENTLY HAS APPROX 4,000 GAL DFM IN MAIN TANK.
NO APPARENT POLLUTION ATT.

E. MEDIA: CH 10 NEWS HELO O/S FILMED RECOVERY OF SURVIVORS. UNIT
PAO FILMED RESCUE W/UNIT HI-8 CAMERA.

5. CASE STATUS:

A. SORTIE DATA:

PT BROWER 1 SORTIE/0.6 HRS

RHI 1 SORTIE/0.3 HRS

B. UCN 038-93

BT

Search Action Plan

Introduction The Search Action Plan is normally developed by the SMC and is used to formally pass action required of SRUs and agencies. It may be abbreviated depending on the mission size, but usually contains the following information.

Format As you read this, refer to the sample on pages 4-32 and 4-33.

Paragraph Title	Description
Situation	<ul style="list-style-type: none">a. Brief description of incident, position, and time.b. Number of persons on board (POB).c. Primary/Secondary search targets, including amount and type of survival equipment.d. Weather forecast and period for forecast.
Search Area	<ul style="list-style-type: none">a. Area title.b. Search area description by corner point, center point, boundary, or trackline method.
Execution	<ul style="list-style-type: none">a. Areab. SRUc. Parent agencyd. Patterne. Creep directionf. CSPg. Track spacingh. Altitude
Coordination	<ul style="list-style-type: none">a. SMC designation.b. OSC designation.c. On scene time for SRUs.d. Coverage factor desired.e. OSC instructions (include DMB instructions).f. Airspace reservations.g. Aircraft safety comments.h. SRU CHOP instructions.i. Parent agency relief instructions.
Communication	<ul style="list-style-type: none">a. Control channels, primary and secondary.b. On scene channels, primary and secondary.c. Monitor channels.d. Press channels.
Reports	<ul style="list-style-type: none">a. OSC collects on scene weather reports from SRUs, collates information, and resolves discrepancies prior to report to SMC.b. OSC reports to SMC.c. Parent activities report to SMC at end of daily operations: sorties, hours flown, area(s) searched, and coverage factor(s).

Search Action Plan

Sample

The following is a sample of page 1 of a Coastal Search Action Plan.

O 221234Z JAN 01
FM GUAMSARCOORD GQ
TO JRCC HONOLULU HI
USCGC RUSH
CTF SEVEN TWO POINT FIVE
COGARD AIRSTA BARBERS PT HI
USCGC GALVESTON ISLAND
INFO COMPACAREA COGARD ALAMEDA CA
COMNAV Marianas GQ
AMEMBASSY KOLONIA GQ
USCGC GALVESTON ISLAND
CTG SEVEN TWO
RESTRACEN YORKTOWN VA//TSAR//
BT

UNCLAS //N16130//

SUBJ: SEARCH ACTION PLAN FOR 22 JAN 01

1. SITUATION:

A. AN 18-FOOT FISHING VESSEL IS REPORTED MISSING FROM A DAY FISHING TRIP FROM NOMWIN ATOLL IN THE CAROLINE ISLANDS. THE VESSEL DEPARTED ON THE MORNING OF 18 JAN AND WAS DUE TO RETURN BEFORE SUNSET. THE VESSEL HAS NOT BEEN SIGHTED SINCE ITS DEPARTURE.

B. POB: 3, ALL MALE IN GOOD HEALTH.

C. PRIMARY SEARCH TARGET: 18-FOOT OPEN BOAT, WHITE HULL, BLUE INTERIOR. 65 HP BLACK OUTBOARD MOTOR WITH 2 RED SIX-GALLON GAS TANKS. NO SURVIVAL EQUIPMENT OR FLARES. UNKNOWN IF FOOD OR WATER ABOARD. NO RADIO, RAFT, OR EPIRB.

D. WEATHER FORECAST FOR SEARCH AREA: WINDS SE 10-20 K DECREASING TO 5-10 KNOTS. OVERNIGHT. SEAS S 1-3 FT. SWELL E 3-5 FT AND DECREASING. NO RAIN FORECAST.

2. SEARCH AREA (READ IN FOUR COLUMNS):

A-1	NW	16-25N	117-45E	NE 16-25N	118-15E
	SW	16-00N	117-45E	SE 16-00N	118-15E
A-2	NW	16-25N	117-15E	NE 16-25N	117-45E
	SW	16-00N	117-15E	SE 16-00N	117-45E
A-3	NW	16-25N	116-45E	NE 16-25N	117-15E
	SW	16-00N	116-45E	SE 16-00N	117-15E
A-4	COASTAL AREA TO 10 MILES OFFSHORE				

Search Action Plan

3. EXECUTION:

AREA	SRU	PARENT	PATT	CRP	CSP	S	ALT
A-1	P-3	CTF 72	PS	270	SE	5	500
A-2	C130	BARB PT	PS	270	SE	5	1000
A-3	RUSH	PACAREA	CS	180	NW	3	--
A-4	WPB	MARSEC	COASTAL AREAS			1	--

4. COORDINATION:

A. GUAMSARCOORD REMAINS SMC.

B. USCGC RUSH DESIGNATED OSC.

C. ALL UNITS TO BE ON SCENE BY _____Z.

D. ON SCENE COMMANDER AUTHORIZED TO ALTER SEARCH AREA AS SITUATION DICTATES. ENSURE ALTITUDE SEPARATION FOR ALL AIRCRAFT.

E. NO AIRSPACE RESTRICTIONS IN SEARCH AREA.

F. ALL UNITS CHOP TO SMC PRIOR TO ARRIVAL IN SEARCH AREA.

5. COMMUNICATIONS:

A. PRIMARY 5696 MHZ, SECONDARY 282.8 MHZ, TERTIARY 157.15 VHF CH 23A.

6. REPORTS:

A. OSC REPORT WEATHER UPON ARRIVAL AND EVERY FOUR HOURS.
SUBMIT CONSOLIDATED SITREP EVERY SIX HOURS.

B. SRUS REPORT ALL SIGHTINGS TO OSC.

C. PARENT ACTIVITIES REPORT END OF DAY OPERATIONS TO SMC INCLUDING NUMBER OF SORTIES, HOURS FLOWN AND SEARCH AREAS COMPLETED.

BT

Rescue Action Plan

Introduction

The Rescue Action Plan uses the same general format as the search action plan and formally details actions required of SRUs and agencies to carry out an effective, efficient and safe rescue. Usually the Rescue Action Plan is not required, since it is either combined with the Search Action Plan or rescue may logically follow a successful Search Action Plan. The basic rescue action plan usually has the following sections:

Format

As you read this, refer to the sample on page 4-36.

Situation	<ul style="list-style-type: none">a. Brief description of incident.b. Number of persons requiring rescue.c. Extent of injuries of persons involved.d. Amount and type of survival equipment.e. Weather forecast and period of forecast.f. SRUs on scene.
Rescue Area	<ul style="list-style-type: none">a. Position of the incident described by proper name and latitude/longitude, or by bearing/distance from a well-known geographic point.b. Detailed description of access route to be followed by SRUs, including beaching sites and overland routes, in relation to well-known and easily identifiable geographic features, such as roads, rivers, and highway mileage markers.
Execution	<ul style="list-style-type: none">a. SRUs assigned, including unit call sign and parent agency.b. Rescue method to be attempted by SRU.c. Aerial delivery of supplies and other supporting equipment to SRU.d. SMC supportive arrangements.
Coordination	<ul style="list-style-type: none">a. SMC designation.b. OSC designation.c. On scene/rendezvous time for SRUs.d. SRU CHOP instruction.e. Parent agency relief instructions.f. Temporary flight restrictions.g. Authorization for non-SAR aircraft in area.

Rescue Action Plan

Format

Communication	<ul style="list-style-type: none">a. Control channels, primary and secondary.b. On scene channels, primary and secondary.c. Call signs of aircraft assigned high altitude communications relay duties.d. Other information.
Reports	<ul style="list-style-type: none">a. OSC reports to SMC.b. Parent activity reports to SMC at end of daily operations: sorties, hours flown, and further recommendations.

Rescue Action Plan

Sample

The following is a sample of Rescue Action Plan.

O 221234Z JAN 01
FM CCGDSEVEN MIAMI FL
TO USCGC DALLAS
USCGC TAHOMA
COGARD AIRSTA MIAMI
COGARD AIRSTA ELIZABETH CITY
INFO COMLANTAREA PORTSMOUTH VA
TRACEN YORKTOWN VA//TSAR//
BT
UNCLAS //N16130//
SUBJ: RESCUE ACTION PLAN FOR 22 JAN 01

1. SITUATION:

A. CRUISE SHIP EXPENSIVE EXPERIENCED MAIN SPACE FIRE RESULTING IN PASSENGERS ABANDONING SHIP, PIW AND INJURIES ABORD VESSEL. VESSEL IS DIW AND LISTING.

B. 1122 (1023 ADULTS, 99 CHILDREN)

C. HYPOTHERMIA FOR PAX IN WATER, SEVERE BURNS OF SEVERAL CREW MEMBERS.

D. NUMEROUS LIFEBOATS EQUIPPED WITH EMERGENCY EQUIPMENT.

E. FCST 171200Z TO 172400Z: CEILING 8000 SCATTERED, VISIBILITY 10, WIND 190/10KTS.

F. C-130, CG1390 CONDUCTED NIGHT RECONNAISSANCE I NAREA AND REPORTED NUMEROUS LIFEBOATS IN WATER. CGC DALLAS AND CGC TAHOMA ENROUTE.

2. RESCUE AREA: ATLANTIC OCEAN, 24-18N 067-08W, 220NM NE OF MIAMI FL.

3. EXECUTION:

A. CGC DALLAS DIVERTED FROM PORT CALL TO SEARCH AREA, HH-65 ABOARD DALLAS. CGC TAHOMA DIVERTED FROM PATROL AT 220212Z TO PROCEED TO SEARCH AREA, HH-60 ABOARD TAHOMA.

B. DALLAS AND TAHOMA LAUNCH HELICOPTERS WHEN 50 MILES FROM CRUISE SHIP IF WEATHER CONDITIONS SUITABLE. HELOS TO RECOVER PIW AND TRANSPORT TO DALLAS.

C. AIRSTA E CITY C-130 TO PROVIDE COMMS WITH PARENT UNITS.

D. FOLLOWING RECOVERY OF PIW, DALLAS TO PROCEED BEST SPEED TO MIAMI FL.

E. TAHOMA TO CLOSE CRUISE SHIP, PROVIDE R/A TEAM. TOW VSL IF REQUIRED.

4. COORDINATION

A. MIAMI SAR COORDINATOR REMAINS SMC.

B. TAHOMA DESITNATED OSC.

C. CG C-130 TO DROP SUPPLIES, PARTS AND MEDICAL EQUIPMENT AS NEEDED.

D. AIRCRAFT CHOP OSC UPON ARRIVAL RESCUE AREA, CHOP PARENT UNIT UPON DEPARTURE RESCUE AREA.

E. AIRSTA E-CITY PROVIDE RELIEF C-130 AS NEEDED.

F. TEMPORARY FLIGHT RESTRICTIONS SURFACE TO 2000 FEET, 5 MILE RADIUS OF RESCUE AREA.

G. ONE AIRCRAFT CARRYING PRESS AUTHORIZED IN AREA OF TEMPORARY FLIGHT RESTRICTION, IDENT N1717Q. DIRECTED TO CONTACT ON SCENE AIRCRAFT 123.1 PRIOR TO ENTRY.

5. COMMUNICATIONS

A. CONTROL CHANNEL PRI 5680 KHZ, USB, SEC 8994 KHZ USB.

B. ON SCENE CHANNEL PRI 282.8 MHZ, SEC 123.1 MHZ.

C. COMMUNICATIONS RELAY TO BE COORDINATED BY OSC.

D. CRUISE SHIP MONITORING PRI 5680 KHZ AND CHANNEL 23 VHF.

6. REPORTS

A. OSC SEND SITREPS TO SMC WITH WEATHER EVERY FOUR HOURS.

B. PARENT ACTIVITIES SEND END OF DAY OPERATIONS REPORT OF SORTIEES, HOURS FLOWN AND RECOMMENDATIONS TO SMC.

BT

Additional Requirements

Timeliness

The initial SITREP should be sent as soon as details of an incident become clear to indicate SAR system involvement.

Additional SITREPs should be submitted at least every 4 hours or when important new developments occur during a mission. SITREPs should not be delayed for verification of all the details. Amplifying information can be provided in later reports.

Search and Rescue Information Management System (SARMIS)

SARMIS is a database of Coast Guard SAR information which provides for:

- Better management of overall SAR system.
- Collection, correlation, and reduction to a useable form of the tremendous amount of SAR data
- Statistical analysis of SAR program performance

All units are required to submit data into the SAR database anytime Coast Guard resources are involved in assisting any person and/or property in any degree of peril. Refer to area and district policy for submission requirements.

Lesson 4 Self-Quiz

Questions

1. Define datum.

2. The best information on total water current is obtained from what type of buoy?

3. Place an "X" next to the currents that may be involved in determining total water current.

_____ Sea

_____ Leeway

_____ Rip

_____ Tidal

_____ River

_____ Lake

4. Define leeway.

5. What is the correct radius for a coastal model search area if the target has been adrift for 6 hours or less?

6. Define track spacing.

Lesson 4 Self-Quiz

Questions (Continued)

7. What are the three correction factors you use to determine corrected sweep width?
- _____
- _____
- _____
8. Using the FIXED WING sweep width tables on page 4-12, determine the corrected sweep width for a search trying to locate a 35-foot power boat. Seas are 2 ft, aircraft speed 120 knots, and the crew is not fatigued.
- _____
- _____
9. What is the correct formula for determining coverage factor?
- _____
- _____
10. Define Probability of Detection (POD).
- _____
- _____
11. List eight items to consider when selecting an appropriate search pattern.
- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____
-

Lesson 4 Self-Quiz

Questions (Continued)

12. Match the letter designation in column A with its appropriate search pattern in column B. Use each search pattern only once.

Column A

Column B

- | | |
|--------------|--|
| _____ 1. VS | a. Multi-unit creeping line coordinated. |
| _____ 2. TMR | b. Multi-unit radar trackline. |
| _____ 3. BS | c. Single-unit vector. |
| _____ 4. CMC | d. Single-unit barrier. |
| | e. Single-unit radar trackline. |

13. Which search pattern is used to cover a large area when there is more chance of the search object being in one end of the search area than the other?

14. Which search pattern is used when datum is established within close limits and uniform coverage is desired?

15. Which search pattern is used when datum is established with a high degree of confidence and the target may be difficult to detect?

16. What is the required time interval between SITREP submissions?

17. Who is normally responsible for development of the Search Action Plan?

Answers to Self-Quiz

Question	Answer	Reference
1	Datum is defined as the most probable location of the search object corrected for movement over a period of time.	4-3
2	Datum marker buoy	4-4
3	<input checked="" type="checkbox"/> Sea <input type="checkbox"/> Leeway <input type="checkbox"/> Rip <input checked="" type="checkbox"/> Tidal <input checked="" type="checkbox"/> River <input checked="" type="checkbox"/> Lake	4-4
4	Leeway (LW) relates to the movement of an object through the water due to the pushing force of the wind.	4-6
5	6 NM	4-8
6	Track spacing is the distance between two adjacent parallel search legs.	4-11
7	Weather Fatigue Aircraft speed	4-14
8	$W = WU \times Fw \times f \times FV = 5.4 \times .5 \times (NA) \times 1.1 = 2.97$	4-12
9	$C = W/S$	4-18

Lesson 5

PILOTING AND SHIPPING OFFICERS

Overview

Introduction

The safe navigation during a restricted maneuvering is one of the most challenging and complex duties of a Radarman. Qualification as shipping and piloting officer is an important step of your advancement to RD1.

Objectives

To successfully complete this lesson, you must study the text and master the following:

- **IDENTIFY** the responsibilities of the piloting and shipping officers.
 - **IDENTIFY** the relationship among members of the navigation team.
 - **IDENTIFY** the required reports of the shipping officer.
 - **IDENTIFY** the required reports of the piloting officer.
 - **IDENTIFY** the content of a Standard Fix Report.
 - **IDENTIFY** the procedures for conducting an anchorage.
 - **IDENTIFY** the priority of contacts to be tracked.
-

References

The information contained in this lesson can be found in the following references:

- Cutter Navigation Standards and Procedures, COMDTINST 3530.2 (series)
 - WHEC 378 Class Tactical Manual, NWP 3-20-6.23
 - WMEC 270 Class Tactical Manual, NWP 3-20-6.22
 - Mobility, Logistics, Fleet Support Operations, Non-Combat Operations and Explosive Ordnance Disposal Exercises Publication, FXP-4 (series)
 - Marine Navigation 1, Piloting Second Edition, Richard R. Hobbs
-

Overview

Performance Qualifications

This lesson covers the following performance qualifications for RD1 from the Enlisted Qualifications Manual:

C.6.01 – Perform the duties of shipping officer in restricted waters in accordance with Cutter Navigation Standards and Procedures, COMDTINST 3530.2 (series); unit’s tactical manual; and Bowditch.

C.6.02 – Perform the duties of piloting officer in restricted waters in accordance wit Cutter Navigation Standards and Procedures, COMDTINST 3530.2 (series); unit’s tactical manual; and Bowditch.

Restricted Waters Navigation Team for CIC

Piloting Officer	Supervises the navigation radar operator, navigation plotter, and navigation recorder/log keeper. Primary duty is to evaluate fix accuracy and report pertinent information to bridge. The piloting officer is also responsible to keep the shipping officer advised of planned course and speed changes.
Shipping Officer	Primary duty is to maintain and evaluate the surface contact picture. He/she designates contacts to be watched and tracked for collision avoidance and correlates lookout information with the radar picture in accordance with ship's directives. The shipping officer also passes evaluated shipping information to the piloting officer and OOD, recommends course and speed changes to the OOD for contact avoidance, and informs piloting officer/OOD if a proposed navigation maneuver is clear of shipping. The shipping officer supervises the shipping radar operator and shipping log keeper.
Shipping Radar Operator	Tracks and watches contacts as directed by the shipping officer. This position may be combined with the shipping log keeper in low traffic situations.
Shipping Log Keeper	Maintains the CIC shipping log in accordance with local directives. Logs all recommendations from the shipping officer. This position may be combined with the shipping radar operator during low traffic situations.
Navigation Plotter	Maintains CIC navigation plot. Duties include plotting and labeling each fix, extending DR at least two fix intervals, computing set and drift, computing distance and time to turn, updating turn bearings/ranges, and all other duties assigned by piloting officer.
Navigation Log Keeper	Logs all piloting officer recommendations as well as standard fix reports.
CIC Log Keeper	Maintains CIC watch log and surface contact log in accordance with local directives.

Required Navigation Reports

Timeliness

The bridge navigation evaluator should be passing fix information to the commanding officer, conning officer and navigator within one minute of the actual fix. The optimum time is 30 seconds.

A portion of the information passed to the commanding officer, conning officer and navigator is CIC concurrence/nonconcurrence or CIC has no fix. To meet this requirement, the standard fix report to the bridge must be completed quickly and accurately.

Standard Fix Report

The required information to be passed is:

- Fix time
 - Fix quality
 - Estimated Position/Excellent/Good/Fair/Poor
 - Fix in relation to proposed track
 - Left/Right/On
 - Depth of water beneath the keel and comparison to charted depth
 - Nearest hazard to navigation
 - Shoal water/submerged rocks/wreck/land/et cetera
 - Any recommendation to regain/maintain proposed track
 - Time to next turn
 - Distance to next turn
 - Course on next turn
 - Set and drift (as required)
 - Computed once on each leg less than 1,000 yards and every third fix for track legs greater than 1,000 yards
-

Required Navigation Reports

Sample Format Based on (**Excellent**) (**Fair**) (**Poor**) (**Fix**) (**EP**) at time _____ CIC holds the cutter _____ yards (**left/right**) of proposed track. CIC recommends turning (**left**) (**right**) (**maintain**) to course _____ to regain track. Nearest hazard to navigation is _____ (**describe hazard**) _____ yards on (**Port**) (**Starboard**) (**Ahead**) (**Bow**) (**Beam**) (**Quarter**). Fathometer reading is _____ (**feet**) (**fathoms**) (**meters**) and (**agrees**) (**does not agree**) with charted depth of _____ (**feet**) (**fathoms**) (**meters**). There are _____ yards to next turning point. At speed of _____ (**current speed**), the cutter will reach next turning point in _____ (**minutes**) (**seconds**). Recommend turning (**left**) (**right**) to new course _____ at time _____. CIC computes set and drift as _____ (**degrees**) _____ (**knots**).

Sample Report Based on Excellent at time 0712 CIC holds the cutter 300 yards right of proposed track. CIC recommends turning left to course 180° to regain track. Nearest hazard to navigation is shoal water 800 yards on Port Bow. Fathometer reading is 18 feet and agrees with charted depth of 18 feet. There are 12,000 yards to next turning point. At speed of 12 knots, the cutter will reach next turning point in 30 minutes. Recommend turning right to new course 200 at time 0742. CIC computes set and drift as 180° 0.6 knots.

Piloting during Anchorage

Navigator Duties

Once an anchorage has been chosen, it is the navigator's duty to anchor the ship in the center of the anchorage. To accomplish this maneuver, the navigator needs to keep the cutter as nearly as possible on its preplanned approach and to have all headway off by the time the ship reaches the letting-go circle. It is the job of the piloting officer to assist the navigator with these duties.

Piloting to Anchorage

The duties of the piloting officer do not change during an anchorage. The only difference is on the approach leg leading into the anchorage.

Once the cutter is within 1,000 yards of the anchorage point, fixes should be taken continuously. Reports should consist of bearing and range to the anchorage and course recommendations to the center of the anchorage.

Every ship has individual-handling characteristics; however, as a general rule, the ship should come to all stop. Engines are normally reversed as the ship nears the letting-go circle. This removes all headway from the ship as it passes over the letting-go circle. The piloting officer should recommend, "Letting to the port/starboard anchor" when the ship has reached the drop range and all way is off ship.

Once the anchor is let go, a complete round of fixes should be taken to calculate the exact position the anchor was dropped. This position will be used to determine the swing and drag circle once the anchor chain has been let out.

Contact Tracking Priorities

Contact Tracking

Generally, all surface contacts that may impede a cutter's navigation through restricted waters will be tracked. These include but are not limited to:

- All contacts forward of the beam.
- Contacts aft of the beam closing the cutter.
- Contacts whose movement is erratic (i.e., sailing vessels or fishing vessels).
- Contacts laying close to or on a future trackline.

Specific requirements for tracking contacts should be included in the cutter's CIC Doctrine, Operations Department Standing Orders, or Commanding Officer's Standing Orders.

Lookouts

During restricted navigation, the shipping officer should be in contact with the lookouts via sound-powered phones. The shipping officer utilizes the lookouts to correlate the radar picture with the visual picture and passes both correlated and raw information to the pilothouse.

Shipping Officer Reports

Initial Report

Upon initial detection of a radar contact, the shipping officer should pass the following information to the conning officer:

- Contact designation (i.e., track number 8001 or SKUNK A).
 - Bearing and range to the contact.
-

Amplifying Reports

Once further information becomes available, it should be passed to the conning officer. Amplifying information to be passed includes:

- Course and speed of the contact.
 - Closest point of approach (CPA) for the contact.
 - Recommendations for contact avoidance including sound signals if required.
 - Lookout correlation of a contact.
-

Examples of Reports

Initial detection:

New contact track number 8001, bearing 135° true, range 12,800 yards

Course and speed:

Track number 8001, course 180°, speed 12 knots

Closest point of approach:

Track number 8001, CPA bearing 135°, range 1,200 yards, time 1323

Recommendations:

Shipping recommends turning left to course 045° to avoid track number 8001 by 2,000 yards

Recommendations with sound signals (inland):

Recommend sounding _____ (whistle signal) to (propose) (concur) (port to port) (starboard to starboard) passage with _____ (track designation). Recommend coming (left) (right) to course _____ to facilitate passage.

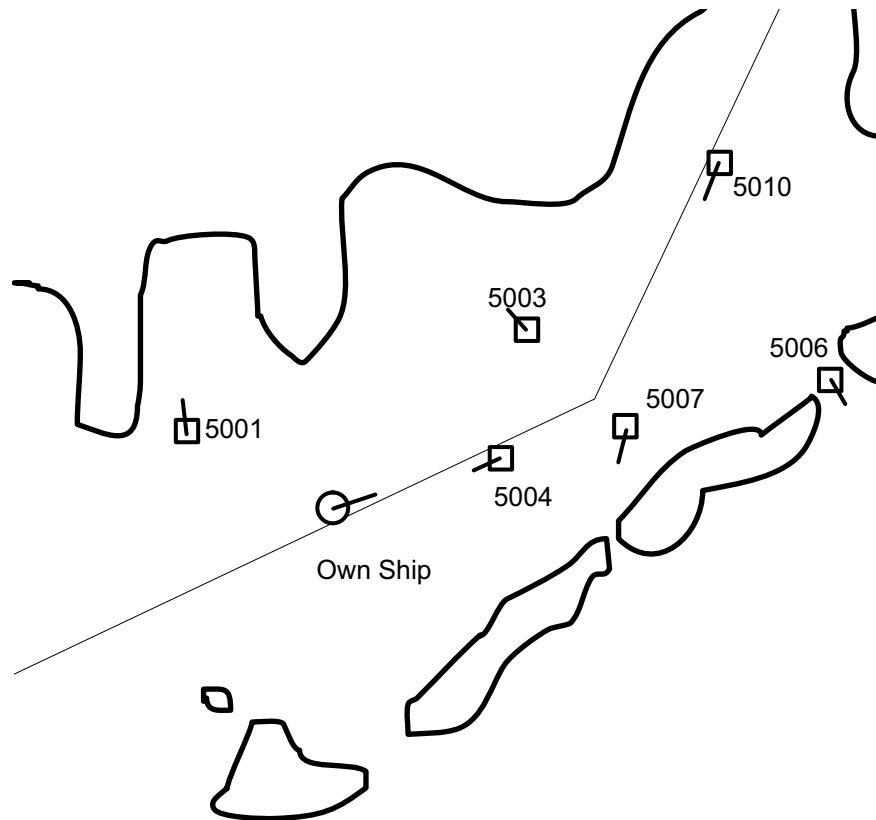
Recommendations with sound signals (international):

Recommend sounding _____ (whistle signal) and coming (left)(right) to course _____. Reason:_____.

Correlation:

Shipping correlates track number 8001 to the coastal freighter reported by lookout bearing 060°, relative range 8,500 yards

Sample Navigation Detail



Piloting Officer reports to Bridge: Bridge – Combat Based on Excellent at time 0712 CIC holds us 300 yards left of proposed track. CIC recommends turning right to course 070° to regain track. Nearest hazard to navigation is shoal water 800 yards on Port Beam. Fathometer reading is 18 feet and agrees with charted depth of 18 feet. There are 1,800 yards to next turning point. At speed of 12 knots, the cutter will reach next turning point in 30 minutes. Recommend turning right to new course 030° at time 0742. CIC computes set and drift as 180° 0.6 knots

Shipping Officer to Piloting Officer and Bridge: Shipping holds course 070° clear of all shipping. When we turn to course 030° at 0742, the revised CPA to track number 5010 will be 200 yards off the port beam. Shipping recommends turning to course 035° at time 0742 to open CPA to 1,000 yards.

Piloting Officer to Bridge: CIC holds course 035° clear of all navigation hazards.

Lesson 5 Self-Quiz

Questions

1. The piloting officer supervises all of the following EXCEPT _____.
 - A. bearing takers
 - B. navigation plotter
 - C. navigation log keeper
 - D. navigation radar plotter
 2. List the three primary duties of the piloting officer.

 3. The shipping officer passes evaluated shipping information to which two positions?

 4. Whose primary duty is to evaluate CIC fix accuracy and report pertinent information to bridge?
 - A. Navigator
 - B. CIC officer
 - C. Piloting officer
 - D. Shipping officer
 5. What position may be combined with the shipping radar operator during low traffic situations?
 - A. Navigator
 - B. Piloting officer
 - C. Shipping officer
 - D. Shipping log keeper
 6. Which of the following is NOT part of the Standard Fix Report?
 - A. Time of Fix
 - B. Quality of fix
 - C. Time to next turn
 - D. Quality of radar navigation points
-

Lesson 5 Self-Quiz

Questions (Continued)

7. On a leg of 3,000 yards, set and drift is computed _____ at a minimum.
 - A. once
 - B. every fix
 - C. every third fix
 - D. every 1,000 yards
8. During the final 1,000 yards to an anchorage, fixes are taken _____.
 - A. every 3 minutes
 - B. every 2 minutes
 - C. every 200 yards
 - D. continuously
9. Which of the following contacts should be tracked by the shipping radar operator?
 - A. Coastal freighter aft of the beam and opening
 - B. Cruise ship anchored aft of the beam
 - C. Sailing vessel forward of the beam
 - D. Small island forward of the beam
10. List the three things that should be passed to the bridge upon initial detection of a contact.

Answers to Self-Quiz

Question	Answer	Reference
1	A	5-3
2	1. Evaluate fix accuracy 2. Report pertinent information to bridge 3. Keep the shipping officer advised of planned course and speed changes	5-3
3	1. Piloting officer 2. Officer of the deck	5-3
4	C	5-3
5	D	5-3
6	D	5-4
7	C	5-4
8	D	5-6
9	C	5-7
10	1. Contact Designation 2. Bearing to Contact 3. Range to Contact	5-8

Lesson 6

CIC ELECTRONIC EQUIPMENT

Overview

Introduction

As an RD1, you will be expected to know and be able to conduct briefs of the equipment in CIC. This lesson will cover electronic equipment found in CICs throughout the cutter fleet. This lesson is not intended to be an all-encompassing user guide for the equipment; rather it is an overview of the capabilities, limitations, and reliability of the equipment.

Objectives

After completing this lesson, you will be able to:

- **DETERMINE** the type of equipment using the joint electronic nomenclature system
 - **IDENTIFY** the capabilities, limitations, and reliability of the following equipment:
 - a. AN/SPS-73 Surface-Search Radar
 - b. AN/SPA-25 (G) Radar Repeater
 - c. Tactical Digital Information Links (TADILs) - Link 11
 - d. IFF System equipment
 - e. AN/SPS-49 Air-Search Radar
 - f. AN/URN-25 Tactical Air Navigation System (TACAN)
 - g. Mk 36 Decoy Launching System
- Refer to the Confidential Supplement to Lesson 6 for h. through k.
- h. AN/SPS-40 Air-Search Radar
 - i. WLR-1
 - j. SLQ-32
 - k. Mk 92 Fire Control System (FCS)
-

Overview

References

Operations Specialist 3&2 Volume 2, NAVEDTRA 10146

WHEC 378 Class Tactical Manual, NWP 3-20.6.22

WMEC 270 Class Tactical Manual, NWP 3-20.6.23

Operators Manual for AN/SPS-73 Surface-search radar
(TM-SSR-1 Rev A)

Federation of American Scientist Web Page, www.fas.org

Performance Qualification

This lesson covers the following performance qualifications for RD1 from the Enlisted Qualifications Manual, COMDTINST 1414.8 (series).

H.6.03 – **BRIEF** the command on the capabilities, limitations, reliability, and operation of CIC equipment in accordance with manufacturer's technical manuals.

Glossary and Confidential Supplement

Terms and definitions for this lesson can be found in the glossary.

Additional confidential sections on electronic equipment have been placed in a classified supplement to this course.

Equipment Nomenclature

Joint Electronics Equipment Nomenclature

The joint electronic equipment nomenclature (AN) system is used to identify most electronic equipment in the Coast Guard and Navy. Knowing this system will allow you to quickly understand the function of a piece of equipment.

The nomenclature is broken down into five sections. These are:

- Installation
- Type of Equipment
- Purpose
- Model
- Modification

Installation

- A – Airborne
 - B – Underwater mobile, submarine
 - D – Pilotless carrier
 - F – Fixed
 - G – Ground
 - K – Amphibious
 - M – Mobile (ground)
 - P – Pack
 - S – Water surface craft
 - T – Transportable (ground)
 - U – Utility, general
 - V – Vehicular
 - W – Surface and underwater
-

Equipment Nomenclature

Type of Equipment	• A – Invisible light, heat radiation
	• B – Pigeon
	• C – Carrier
	• D – Radiac
	• E – Nepac
	• F – Photographic
	• G – Teletype
	• I – Interphone/public address
	• J – Electromechanical
	• K – Telemetering
	• L – Countermeasures
	• M – Meteorological
	• P – Radar
	• Q – Sonar/sound
	• R – Radio
	• S – Special types
	• T – Telephone (wire)
	• V – Visual, visible light
	• W – Armament
	• X – Facsimile or television
	• Y – Data Processing

Equipment Nomenclature

Purpose	<ul style="list-style-type: none">• A – Auxiliary assemblies• B – Bombing• C – Communications• D – Direction finder, reconnaissance/surveillance• E – Ejection/release• G – Fire Control• H – Reproducing• K – Computing• M – Maintenance• N – Navigation Aids• Q – Special• R – Receiving• S – Search Detection• T – Transmitting• W – Automatic flight or remote control• X – Identification/recognition
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Model	The model number designates how many models are in the category.
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Modification	Identifies a set that has been modified but still retains the basic design and is functionally and electrically interchangeable with the unmodified set.
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Examples	<p>AN/WLR-1 (H) is first model of surface countermeasures receiving equipment and has been modified eight times (H) but retains the same basic design as the original.</p> <p>AN/SPA-25 (G) is the twenty-fifth model of a water surface craft radar auxiliary assembly that has been modified seven times (G) but retains the same basic design as the original.</p> <p>AN/SPS-73 is the seventy-third model of a water surface craft search radar that has not been modified from the original.</p>
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AN/SPS-73 Surface-Search Radar System

Description	The AN/SPS-73 Surface-search radar is the typical radar system being used throughout the Coast Guard. It provides navigational surface search with improved Automatic Radar Plotting Aid (ARPA) capability. The current software is capable of maintaining automatic track data on up to 200 separate contacts. The typical system is comprised of the radar and a stand-alone operator position (SAOP). Some units may also have Tabletop/Bulkhead Operator positions (TBOP), remote radar processors (RRP/RP), and Local Area Networks (LAN).
Radar	The radar consists of an horizontal array antenna, a receiver/transmitter, a performance monitor which is used by maintenance personnel for required system adjustments, and an antenna safety switch which disables the antenna rotation as well as the transmit trigger. The radar system consists of an X-Band (9420 MHz) and an S-Band (3050 MHz) radar independently controlled by the SAOP.
SAOP	The SAOP provides complete control of the radar, target processing and tracking, and display of the 21-inch monitor through a trackball and keyboard interface. The display window is divided into a control panel and radar image area for improved system user interface.
TBOP	TBOP provides the operator a remote display of radar video on a 21-inch monitor but does not give operator control of the radar. The TBOP can control a RP on a SAOP via a Local Area Network.
RRP/RP	This system resides in the SAOP and provides all radar processing and supports multiple OPS functions via a network.
LAN	<p>The LAN is used to connect multiple radar systems or multiple operator positions to transfer data between each other and other naval systems.</p> <p>Example: A LAN is established between the SAOP and the Mk 92 Fire Control Radar to allow display of fire control radar on the SAOP.</p>

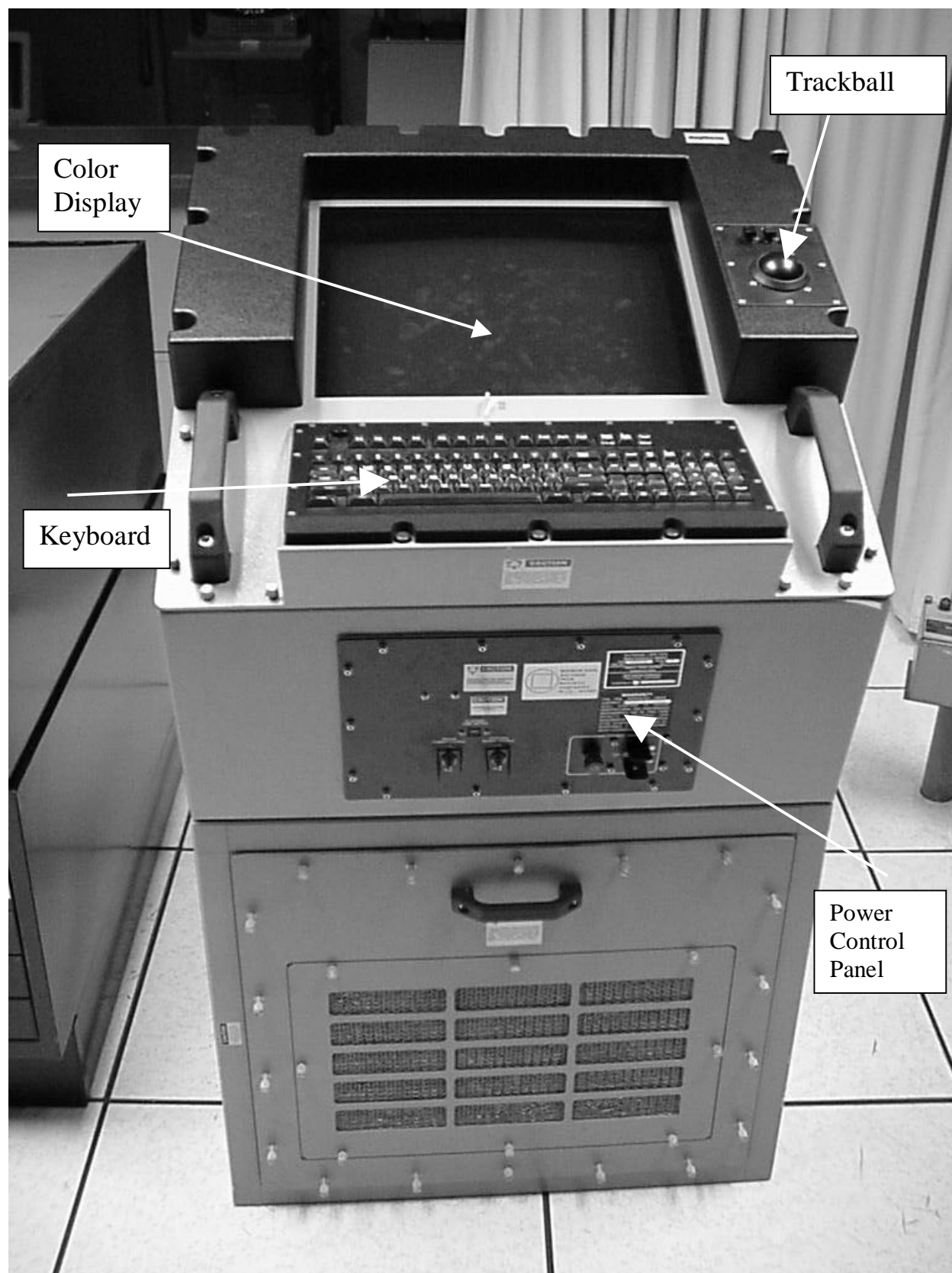
AN/SPS-73 Surface-Search Radar System

Capabilities

The AN/SPS-73 system provides:

- 1600 x 1200 resolution radar image.
 - Suppression of sea clutter, rain, other forms of precipitation, and electronic interference.
 - Manual or automatic track acquisition.
 - Track fusion in multiple system configurations.
-

AN/SPS-73 Surface-Search Radar



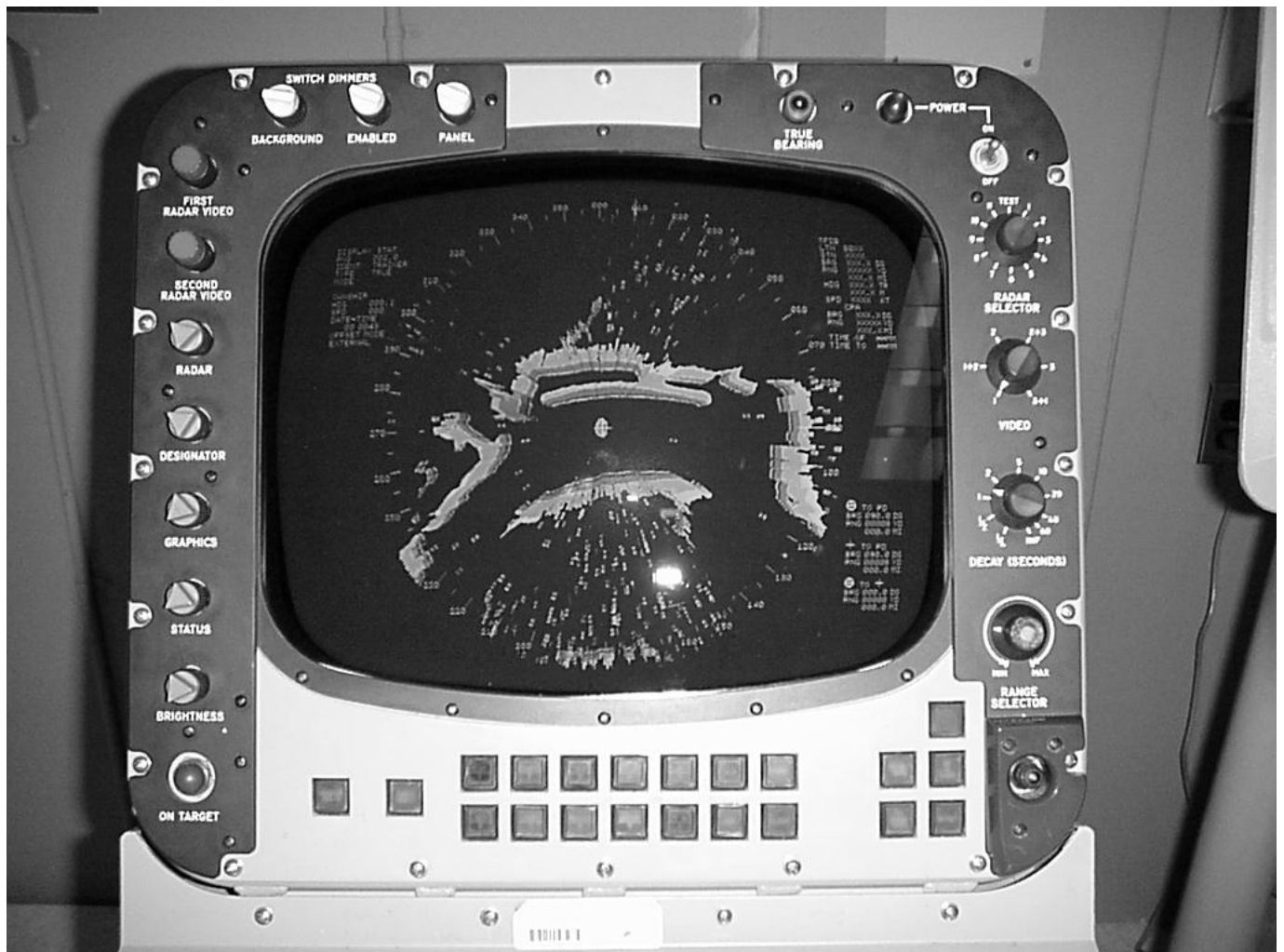
AN/SPA-25

Description

The AN/SPA-25 (G) is an advanced navigation, air search, and tactical radar repeater. This repeater is capable of individually displaying data from up to 11 different radars including the SPS-73, SPS-40, Mk 92, and IFF. The type of radar displayed is controlled by an operator switch control. Additional capabilities of the SPA-25 (G) include determining CPA; plotting geographic points; and displaying contact symbology, offset capability, and air control.

Reliability

The SPA-25 utilizes solid state technology, with the exception of the CRT, which makes this piece of equipment highly reliable.



Tactical Data Links (TADILs)

Overview

A tactical data link is a one- or two-way automated data communication system, which provides for the exchange of real or near-real time tactical data between units. The data links in use in the Coast Guard include Link 11 and Officer in Charge Information Exchange Subsystem (OTCIXS). Data links used by other services include the Common High Bandwidth Data Link – Shipboard Terminal (CHBDL-ST), Link 4A, Link 16/Joint Tactical Bandwidth Data Link (JTIDS), Tactical Data Information Exchange Subsystem – A (TADIXS-A), and Tactical Data Information Exchange Subsystem – B (TADIXS-B).

Purpose

Commanders were originally limited to tactical data that could be seen visually by the ship. With the advent of radar and radio communications, this tactical horizon was greatly increased, but still required manual plotting of other units' tactical data. This provided commanders with a wider tactical horizon, but it was still not real time information.

With the employment of high-speed aircraft and supersonic missiles, battle group commanders needed a real time electronic link to units under their command. The Navy developed the Naval Tactical Data System (NTDS) to meet this new threat. Tactical data links are an integral part of this system.

OTCIXS

This data link is a subsystem of the GCCS system that provides communications and data sharing within a battle group or between different battle groups. OTCIXS provides near real time tactical data and can be used to transmit and receive tactical message traffic. OTCIXS is available on all cutters and shore units that have GCCS capability. OTCIXS will be discussed further in the section relating to GCCS and FOTC.

Link 16 (TADIL J)

Though not currently used in the Coast Guard, this advanced data link is replacing Link 11 on Navy vessels and may replace Link 11 on Coast Guard cutter in the future. Link 16 is a digital data link, which provides jam-resistant, crypto secure, voice and data link communications for command, control, and communications.

Link 11

Description

Link 11 is an automatic, high-speed, computer-to-computer data link that allows tactical data to be transferred between two or more Link 11 capable units. This link allows near real time sharing of contact positions, amplifying information, and target data within a battle group.

Coast Guard Use

Link 11 is currently installed on WHECs and can be installed on FAMOUS class WMECs as needed.

The Link 11 operator must be an experienced radarman who has extensive knowledge of IFF, JMCIS, radio, and crypto equipment. Placing a inexperienced radarman in this position can negatively affect the quality of track database for the entire link environment, as any changes made to own ship tracks are transmitted to all units participating in the link.

Units in the Coast Guard utilize JMCIS software to transmit and receive Link 11 data from other units. Link 11 and OTCIXS are used simultaneously on GCCS-M but are systems independent of one another.

By utilizing Link 11 with DOD or other Coast Guard Link 11 capable units, a cutter can expand its tactical horizon to several thousand miles with near real time data.

Example: Navy and Air Force aircraft fly patrols along the coasts of the United States. During these patrols, they track and identify large numbers of surface vessels. By establishing a tactical link with these aircraft, a WHEC could “see” the shipping picture for hundreds of miles allowing enhanced operations planning.

Capabilities

Link 11 can use UHF, HF, or satellite communications to transmit track data and provide near real time information. The software being utilized at limits the number of tracks displayed.

In an optimal link environment, track position and amplifying information will be updated as often as once every second. Data transmission at this level is “real time” information.

Reliability

Though generally reliable, Link 11 requires multiple systems (crypto gear, GCCS, radio couplers, etc.) to stay operational. Failure of a single system will cause the entire system to fail or become greatly degraded.

IFF System

General

The Identification Friend or Foe (IFF) system one method used to determine the threat of unknown forces. The IFF system consists of two separate integrated subsystems. The first subsystem is the interrogator; the second is the transponder subsystem. These systems interface with the AN/SPS-40 air search and Mk 92 fire control radar to provide IFF at radar operating positions.

The following table shows the sequence of events in an IFF identification process:

Step	Action
1	Search radar detects a target on the PPI (SPS-40 or Mk 92).
2	Radar operator initiates a challenge to target (UPA-59B). <ul style="list-style-type: none">Interrogator generates and sends coded RF pulses. (UPX-25)
3	Target ship or aircraft receives the challenge . <ul style="list-style-type: none">Transponder receives and decodes the challenge.
4	Target ship or aircraft sends identifying reply . <ul style="list-style-type: none">Transponder generates and sends coded RF pulse reply.
5	Challenging ship receives reply . <ul style="list-style-type: none">Interrogator receives and decodes reply
6	Decoded reply is recognized and identification information is displayed on air-search radar PPI. <ul style="list-style-type: none">Emergency and special operations replies are recognized with audible and visual alarms.

Interrogator Subsystem

The interrogator subsystem consists of an UPX-25 interrogator, C-8430 control monitor, BZ-173 alarm monitor, and UPA-59B video decoders. This subsystem is used to interrogate the IFF system of other units with IFF.

UPX-25 Interrogator

This equipment is responsible for interrogating military and civilian aircraft and military ships equipped with IFF transponders. All modes of IFF can be challenged simultaneously. The interrogator is limited to line of sight and uses a radio frequency of 1030 MHz for interrogations.

C-8430 Control Monitor

The defruiter and mode 4 controls are the most often utilized features of the Control Monitor. The Control Monitor allows the user to zeroize and test mode 4 remotely. The defruiter function removes nonsynchronous transponder replies and noise from the received video.

IFF System

BZ-173 Alarm Monitor

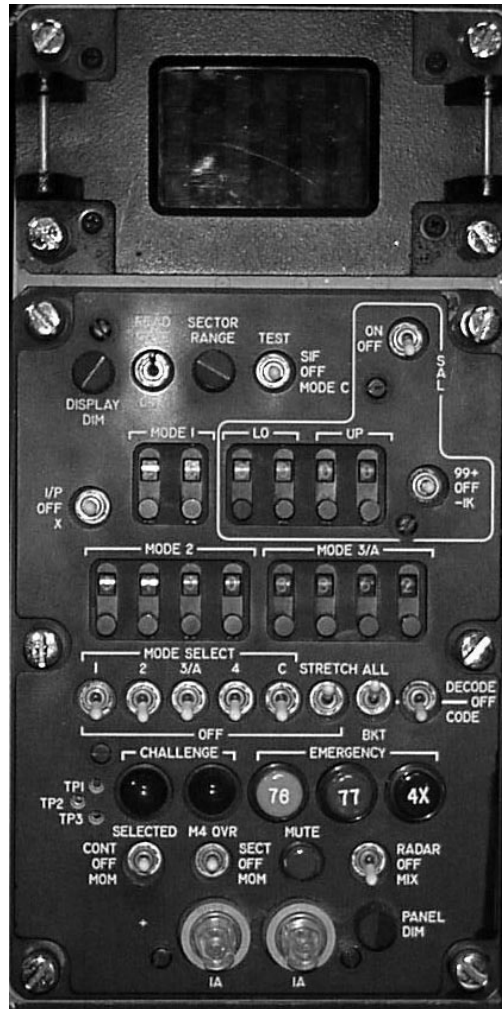
The alarm monitor consists of a speaker and lights for the audio and visual emergency responses.



IFF System

UPA-59B Video Decoder

The UPA-59B is used to initiate a challenge of a selected IFF code. The UPA-59B receives, decodes, and displays the response for the operator. Special visual and audio alarms are incorporated into the video decoders for emergency responses.



IFF System

Emergency Responses

Emergency responses that the UPA-59B displays are:

Code	IFF Mode	Type	Audible Alarm	Visual Display
4X	1, 2, and 3/A	Military	Yes	Blue Flashing Light 4 Pulses 2 miles apart
7500	3/A	Hijacking	No	No
7600	3/A	Radio Comms Failure	Yes	Yellow Flashing Light
7700	3/A	General	Yes	Green Flashing Light 4 Pulses 1 mile apart
Combined	1, 2, 3/A	Combines 4X and 7700	Yes	Blue Flashing Light 4 Pulses 1 mile apart

Note 1: 7500, 7600, and 7700 replies in modes 1 and 2 are not emergency replies.

Note 2: The pulse display will appear as concentrated IFF on the PPI. The PPI would have to be at close range and well tuned to actually see the 4 pulses.

UPX-28 Transponder

This system receives and decodes interrogations, then generates and transmits appropriate replies to IFF challenges. The system replies to interrogations on a radio frequency of 1090 MHz.

The transponder subsystem can function independently on cutters without radar capable of displaying IFF, allowing automatic identification as a friendly unit to the challengers. IFF transponders are installed on all Coast Guard cutters 110 feet or larger.

AN/SPS-49 Long Range Air-Search Radar

Purpose This long range, two-dimensional, air-search radar is utilized for early target detection and tracking to support the AAW mission of surface units. Other functions include air intercept control and antisubmarine air control. This system also provides a reliable backup to three-dimensional weapon designation systems.

Capabilities Maximum range is 250 nautical miles, and minimum range is 0.5 nautical miles. The radar operates in the presence of chaff, clutter, and electronic counter-measures and detects low cross-section threats traveling at super sonic speeds. The narrow beam width of this radar provides the radar with the ability to detect small fighter aircraft at ranges of 225 nautical miles and also provides resistance to jamming.

The system provides for auto detection, tracking, and reporting of targets within its surveillance area.

Reliability The solid state technology, modular construction, performance monitors, automatic fault detectors, built-in-test equipment, and automatic on-line self-test features make this radar extremely reliable.

AN/URN-25 Tactical Air Navigation System (TACAN)

Purpose TACAN is a line of sight air navigation aid that provides range, magnetic bearing, and unit specific identity code to aircraft that are operating with the cutter.

Channels and Codes The URN-25 has 252 channels and has a maximum range of approximately 200 nautical miles.

The identity code is transmitted every 37 seconds and is composed a two-letter Morse code identifier that is unique to the given unit.

Identity codes and channels can be changed. The Navy manages channel and code assignments for Coast Guard units. Prior to each operation, the code and channel assignments need to be verified with the applicable Navy command.

Reliability The URN-25 system is equipped with dual transponders, which provide back up in case of a single transponder failure. In normal operation, one transponder serves as primary, the other as the secondary making this system extremely reliable.

Mk 36 Decoy Launching System (DLS)

Purpose and Components

The Decoy Launching System's primary use is for defense of the cutter against antiship missiles. The DLS is comprised of Super Rabid Bloom Offboard Chaff (SRBOC) and deck mounted, mortar-type launchers which are used to launch several types of SRBOC cartridges. The SRBOC cartridges can be fired from the pilot house or EW console in CIC.

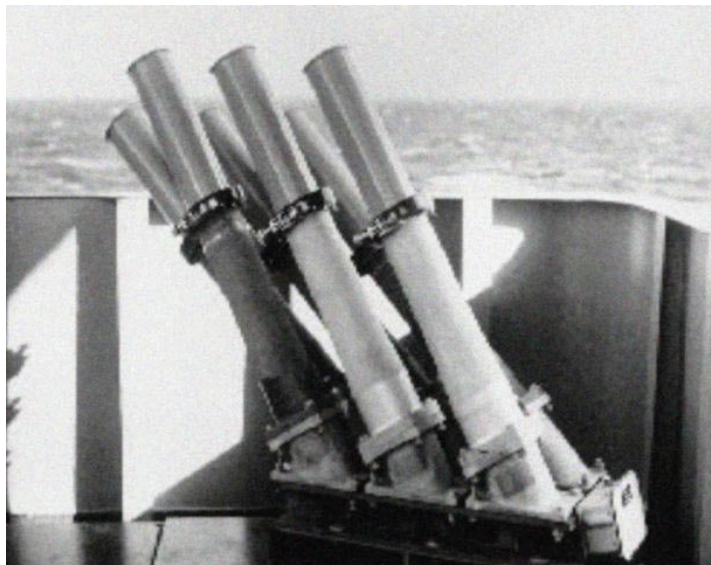
Launchers

Two classes of cutters currently have DLS systems. FAMOUS class WMECs have two groups of six fixed-angle tubes: four tubes set at 45 degrees and two tubes set at 60 degrees. WHEC launchers have two groups of six tubes set at 45 degrees.

SRBOC

The DLS is capable of launching several types of SRBOC cartridges for various purposes.

- Chaff – deceives RF-emitting missiles/radars
 - NATO Sea Gnat – similar to chaff but with greater range and payload of chaff
 - Torch – deceives infrared seeking missiles
-



Loaded Mk 137 Launcher Tubes

Lesson 6 Self-Quiz

Questions

1. According to the joint electronic nomenclature system, an UPA-59 (B) would be what type of equipment?

2. What type of human user interface does the AN/SPS-73 utilize?

- A. Touch screen
- B. Trackball only
- C. Mouse and keyboard
- D. Trackball and keyboard

3. Match the acronym in column A with its purpose in column B for the AN/SPS-73 radar. Each letter may be used only once.

Column A

Column B

_____ 1. SAOP

a. Used to connect multiple radar systems or multiple operator positions.

_____ 2. LAN

b. Provides all radar processing functions.

_____ 3. TBOP

c. Provides remote display of radar video.

_____ 4. RP

d. Contains 15-inch monitor with full radar control functions.

e. Provides complete control of radar, target processing, and track functions.

4. How many different individual radar inputs can the AN/SPA-25 display?

Lesson 6 Self-Quiz

Questions (Continued)

5. Coast Guard units currently use which of the following systems to transmit and receive Link 11 data?
- A. IFF
 - B. JTIDS
 - C. GCCS
 - D. JAMIE
6. What are the two IFF subsystems?
- _____
- _____
7. What radio frequencies does the IFF system use for interrogations and replies?
- _____
- _____
8. A mode 2 IFF reply of 7600 indicates what type of emergency?
- A. Not an emergency reply
 - B. Radio Comms Failure
 - C. General Emergency
 - D. Hijacking
9. What are the maximum and minimum ranges of the AN/SPS-49 radar?
- _____
- _____
10. Why is the URN-25 TACAN System extremely reliable?
- _____
- _____

Lesson 6 Self-Quiz

Questions (Continued)

11. What is the primary use of DLS system?

Answers to Self-Quiz

Question	Answer	Reference
1	Utility, Radar, Auxiliary	6-3 – 6-5
2	D	6-6
3		6-6

<u>Column A</u>	<u>Column B</u>
<u> E </u> 1. SAOP	a. Used to connect multiple radar systems or multiple operator positions.
<u> A </u> 2. LAN	b. Provides all radar processing functions.
<u> C </u> 3. TBOP	c. Provides remote display of radar video.
<u> B </u> 4. RP	d. Contains 15-inch monitor with full radar control functions.
	e. Provides complete control of radar, target processing and track functions.

4	Up to 11	6-9
5	C	6-10
6	Interrogator, Transponder	6-12
7	1030 MHz (interrogator) 1090 MHz (replies)	6-12 & 6-15
8	A	6-15
9	250 NM, 0.5 NM	6-16
10	The system is equipped with dual transponders, which provide back up in case of a single transponder failure.	6-17
11	Defense of the cutter against antiship missiles	6-18

Lesson 7

GLOBAL COMMAND AND CONTROL SYSTEM – MARITIME (GCCS-M)

Overview

Introduction GCCS is installed on every class of cutter and most shore units where RDs are assigned. Being able to properly setup, use, and shutdown the GCCS system is essential to properly complete the mission.

Objectives After completing this lesson, you will be able to:

- **IDENTIFY** the historical advances of GCCS-M.
- **IDENTIFY** the security manager functions of GCCS-M.
- **DETERMINE** the procedures to create a user account.
- **DETERMINE** the procedures to edit a user account
- **DETERMINE** the procedures to create a user profile.
- **DETERMINE** the procedures to edit a user profile.
- **DETERMINE** the procedures to archive/restore files.
- **DETERMINE** the procedures to select a printer.
- **DETERMINE** the procedures to set a default printer.
- **DETERMINE** the procedures in GCCS-M for setting FOTC parameters in participant and coordinator modes.

References The information contained in this lesson can be found in the following references:

- JMCIS Afloat Unified Build Software Users Manual (April 1997)
 - C2Cen Web Page: http://www.uscg.mil/hq/c2cen/fr_out.htm
-

Performance Qualifications This lesson covers the following performance qualifications for RD1 from the Enlisted Qualifications Manual, COMDTINST M1414.8 (series):

K.6.01 – **INSTALL** and **INITIALIZE** printers and plotters in accordance with the Unified Build Users Manual.

E.6.01 – **SET** parameters for FOTC for the coordinator and participant modes in accordance with the Unified Build Users Manual.

Overview

Glossary

Terms and definitions for this lesson can be found in the glossary.

History

Shipboard Tactical Computer

The Coast Guard started looking for a replacement for the Dead Reckoning Tracer (DRT) in 1987. The first system to be fielded was the Shipboard Tactical Computer (STC) onboard the CGC Hamilton in 1989. This system included an SPA-25 interface.

Navy Tactical Command System Afloat (NTCS-A)

The Coast Guard realized the need for more advanced command and control functions and interoperability with other military forces. This need led to Coast Guard's involvement into the NTCS-A program that the Navy was developing.

The term NTCS-A is normally used to refer to the hardware, while the JOTS is the software.

In 1991, the Coast Guard version of NTCS-A, loaded with JOTSII software, was installed on CGC Dallas. Today, we know this system as GCCS.

Joint Visually Integrated Display System (JVIDS)

JVIDS is very similar to GCCS but is designed for shore units. The system allowed districts to view near real time track information from underway units with a JOTS or GCCS terminal.

Joint Military Maritime Command Information System Unified Build (JMCIS)

Following the 1991 Gulf War, several deficiencies were noted in the JVIDS system. Goals were established to have the shore and afloat units using the same software and to develop a "super set software."

The new software upgrade, JMCIS, merged the Navy, Marine Corps, and Coast Guard into a common operating environment.

DII-COE

A decision was made to integrate all branches of the Armed Forces into a single, common-operating environment. The common system is known as the Defense Information Infrastructure Common Operating Environment (DII-COE). The common operating system allows all U.S. Armed Forces to run their own software on any computer utilizing DII-COE.

GCCS-M

GCCS-M (Maritime) is the operational software, which is being used by the Coast Guard on all WHECs, WMECs, district offices, and VTSSs.

Shipboard Command and Control System (SCCS)

Overview	SCCS is a system of systems containing the GCCS-M, Integrated Navigation System, fire control, IFF, and communication systems. The term COMDAC and SCCS are used interchangeably; however, SCCS is the accepted terminology.
GCCS-M	GCCS-M is the current DII-COE software build utilized on tactical computer systems at Coast Guard units.
INS	INS is the navigation software utilized by SCCS. It serves as an Electronic Chart Display and Information System (ECDIS) which provides the cutter with advanced navigator reports and calculations, and displays enhanced radar overlay. Using this system automates the navigation mission on cutters and reduces the necessity for paper charts.
SCCS-378	The SCCS-378 system is comprised of link 11, GCCS, STATNET, OTCIXS, and radar inputs. INS is scheduled to be added to the SCCS-378 SCCS suite within the next couple of years.
SCCS-270	<p>The SCCS-270 system utilizes three computers (designated jots1, jots2, and jots3) for the receipt, processing, and display of navigation and tactical data.</p> <p>A total of five operator positions are available to include:</p> <ul style="list-style-type: none">• Port Bridge• Starboard Bridge• Port CIC• Starboard CIC• Tactical Communicator Officer (TCO)
SCCS-210	<p>The SCCS-210 system utilizes a single computer and has three operator positions to include:</p> <ul style="list-style-type: none">• Chart (flat screen monitor)• QMOW• CIC

Security Manager

General

As a security manager, you will be responsible for creating and deleting user accounts; creating, editing and deleting user profiles; and modifying user permissions and menu access.

User Accounts

Individual user accounts are not assigned; instead watch function accounts are created and modified. The user account gives the operator access to the system. Once an account is created, it cannot be modified.

Profiles

After a user account is created, a profile must be assigned and modified to define the menu functions and options to which the operator will be given access.

The system has three default profiles, which cannot be edited. These are:

- System Admin
- Security Admin
- JMCIS Operator

As security manager, you will be responsible for:

- Deleting unwanted profiles
 - Editing existing profiles
 - Creating new profiles
-

Accessing Security Manager Options

At the log-in screen (shown below), enter the security manager sign-on and password. The sign-on and password may be different for each unit. You will now have access to the security manager options.

DII COE Login (jots2)

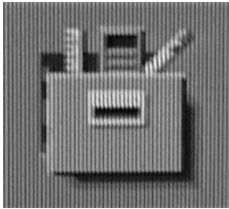
Name:

Password:

Security Manager

Security Manager Window

Once you have successfully signed on, you will have to open the security manager window.

Step	Action
1	Select the file cabinet icon (shown below) from the bottom menu bar. 
2	Double click the “DII_APPS” icon.
3	Double click the “SSO Default” icon. This will bring up the application manager window.
4	Double click the “Security Manager” icon. This will bring up the security manager window (shown below).

SECURITY MANAGER (LOCAL)				
File Edit Option				
Userid	Num	D-Grp	Username	Groups
COE	400	35	COE Boot Account	
JMCIS	800	1	UB System Account	
SA	60	36	Security Admin System Account	
adm	4	4		adm
bin	2	2		bin

Adding Accounts

Procedure

New user accounts will have to be added if an existing account becomes corrupted, inaccessible, or you wish to limit access to certain individuals. Once accounts are added, they cannot be edited. Ensure you create the profile you want to assign to the account before you create the account.

Step	Action
1	Open the Security Manager window.
2	Click on “FILE” pull-down menu and choose “Create Account.”
3	Enter a USER-Id of at least 8 characters. This will be the name the operator enters on the log-in screen.
4	Enter a user name (if desired).
5	The computer will assign the user number.
6	Enter a password of 8 to 10 characters in length.
7	Select one of the existing profiles for this account.
8	Assign the account a user group (if desired).
9	Select “APPLY” to create the account.
10	Select “OK” to close the window.

— SECURITY MANAGER: Create Account (LOCAL) ● □

ENTER NEW ACCOUNT INFORMATION

USER ID:

USER NAME:

USER NUMBER:

PASSWORD:

DEF PROFILE: ▲

OPTIONAL GROUPS: ▲

OK Apply Cancel Help

Adding Profiles

Procedure

Profiles are assigned to user accounts to allow an operator to perform certain functions (such as clean data files or reboot the system) that you do not want every operator to access.

Example: CIC supervisor user-account may have a profile allowing the operator to archive and restore files. But the CIC watch stander user-account may have these menu options deleted.

Step	Action
1	Open the Security Manager window.
2	Select PROFILES from the FILE pull-down menu.
3	Choose ADD PROFILE from the PROFILE pull-down menu.
4	Enter a profile name.
5	Select the account group.
6	Select APPLY.
7	Select OK to close the window.

The screenshot shows a window titled "SECURITY MANAGER: Create Profile (LOCAL)". Inside the window, the text "ENTER NEW PROFILE INFORMATION" is displayed. Below this text, there are two input fields. The first is labeled "PROFILE NAME:" and the second is labeled "ACCOUNT GROUP:". Each input field has a small upward-pointing arrow button to its right. At the bottom of the window, there is a row of four buttons: "OK", "Apply", "Cancel", and "Help".

Editing Profile

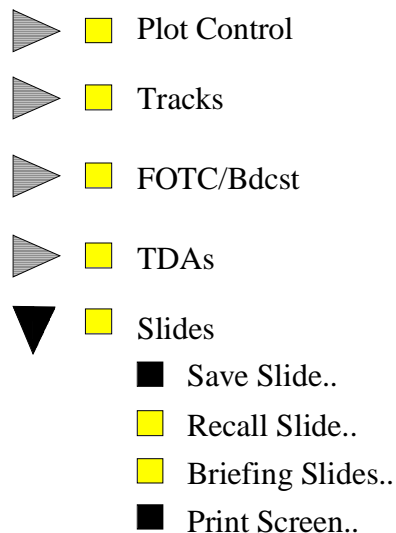
Procedure

Editing profiles gives the security manager the option of limiting permissions and menu options.

Step	Action
1	From the Application Manager window, double click EDIT PROFILE icon. This will bring up a window displaying all current profiles.
2	Select the profile to be edited.
3	Click EDIT.
4	Modify the permissions and menu options as desired. When you chose to EDIT the MENU ACCESS a window will appear showing the pull-down menus and their cascading menu options. To give the operator access to the menu option, the box next to the option must be colored. To disallow access, the menu option must be black (see below).
5	Select "OK."

Example

In this example, the operator using this profile would be able to Recall Slide and Briefing Slides but could not Save Slide or Print Screen.



Deleting Accounts

Procedure

Accounts that are not needed or become corrupt should be deleted.

Step	Action
1	In the Security Manager window, click the account you want to delete.
2	Select “DELETE ACCOUNT” from the FILE pull-down menu.
3	Verify that the USER ID and USER NAME are the same as the account you want to delete.
4	Select “Yes.”
5	Select “OK.”

— SECURITY MANAGER: Delete Account (LOCAL) ● □

Delete User Account

USER ID : test

USER NAME : test

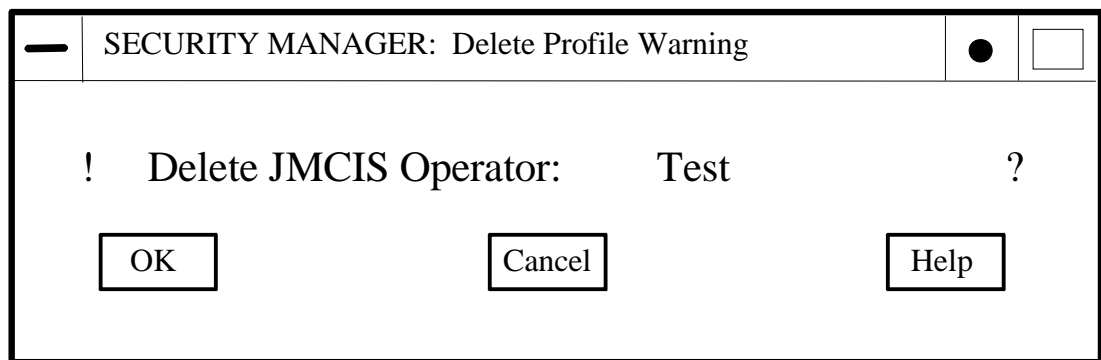
Delete User Files ☐ Yes ☐ No

Deleting Profiles

Procedure

Accounts that are not needed or become corrupt should be deleted.

Step	Action
1	Open the profile manager window.
2	Select the profile to be deleted.
3	Select DELETE from the PROFILE pull-down menu.
4	Click OK to delete the profile.



Archive/Restore

General

Database files such as pimtracks, overlays, or sites should be backed up to allow for recovery in case of system malfunction. Using the ARCHIVE/RESTORE function allows the operator to back up database files. This option also allows an operator the share database files with other units.

The ARCHIVE/RESTORE option copies files to the computer clipboard which acts as a holding area for the data until it is copied to a disk/tape or placed into a database.

ARCHIVE

Archiving is saving database files to a disk or tape. The storage capacity of the disk/tape will determine the amount of data that can be saved.

Step	Action
1	Open the database (PIMTRACK, SITE, or OVERLAY) from which you want to save data.
2	Single-click the file/files you want to save.
3	Click the right track ball button and choose ARCHIVE. The files will be copied to the clipboard.
4	Select ARCHIVE/RESTORE from the MISC pull-down menu. The ARCHIVE/RESTORE window will appear, showing what files are on the clipboard (see next page).
5	Select the type of magnetic media on which the files will be saved. Ensure the disk/tape is inserted in the drive.
6	Select the files to be saved.
7	Click ARCHIVE. The files will now be moved to the selected media.
8	Select all files and click delete to clear the clipboard. This will not delete the files from the database.

Archive/Restore

RESTORE

An operator can use RESTORE to copy from removable magnetic media to the system databases.

Step	Action
1	Select ARCHIVE/RESTORE from the MISC pull-down menu. The ARCHIVE/RESTORE window will appear (see below).
2	Insert the disk/tape into the drive.
3	Click RESTORE. The files will be copied from the disk/tape to the clipboard.
4	Click the files that are to be restored.
5	Click the right trackball button and choose CLIPBOARD TO DB.
6	Once files have been restored, select all files and click delete to clear the clipboard. This will not delete the files from the database.

ARCHIVE/ RESTORE Window

ARCHIVE-RESTORE FILES

Device

☐ LCL Backup 1

☐ LCL Backup 2

☐ LCL Backup 3

☐ Cartridge Tape

☐ DAT Tape

☐ Exabyte Tape

☒ 3 1/2 Inch Low Density Diskette

☐ 3 1/2 Inch High Density Diskette

☐ 5 1/4 Inch Low Density Floppy

☐ 5 1/4 Inch High Density Floppy

Space

Available0960.000 KB

Used0000.000 KB

Clipboard0003/1000

DATA TYPE	DATA NAME	SAVED	SIZE (KB)
TRACK DATABASE	AUTO-BACKUP:P_0051	NO	0001.884
TRACK DATABASE	AUTO-BACKUP:P_0051	NO	0001.884
TRACK DATABASE	AUTO-BACKUP:P_0051	NO	0001.884

Archive

Restore

Delete

Exit

Printers

Installation

Printers will be installed and configured by technicians. The operator should not install print drivers or set up the technical aspects of the printer. However, the operator needs to be familiar with the PRINTER CHOOSER menu option to select a printer and set default printer from a list of printers.

Selecting Printer

In a multiple printer system, the operator must choose a printer to send data for printing if a default has not been set.

Step	Action
1	Select the PRINTER CHOOSER option from the MISC pull-down menu. The PRINTER CHOOSER window will appear (see below) displaying which printers are available.
2	Click on the desired printer to print to it.
3	(optional) To set this printer as the default printer, click on SET DEFAULT.
4	Click EXIT.

JMCIS PRINTER CHOOSER

SELECTED PRINTER

COPIES: 001 HOST: jots3
PRINTER: HP-PAINTJET DEVICE: TTYA
STATUS: UNKNOWN PRINTER

PRINTER NAME	PRINTER TYPE	HOST	REMARKS
HP-PAINTJET		JOTS3	Administrative use printer
TEKTRONIX		JOTS5	

DEFAULT LINE PRINTER

PRINTER: HP-PAINTJET
HOST: JOTS3
DEVICE: TTYA
SET DEFAULT

DEFAULT GRAPHIC PRINTER

PRINTER: TEKTRONIX
HOST: JOTS5
DEVICE: TTYB
SET DEFAULT

PRINT QUEUE **EXIT**

Officer-in-Tactical-Command Information Exchange Subsystem (OTCIXS)

Purpose OTCIXS provides both ashore and afloat units a communications medium for the exchange of tactical information to support a common operational picture. OTCIXS is the primary communications circuit over which the FOTC coordinator and participants exchange contact broadcasts.

Net Control Station (NECOS/NCS) Six nets in four satellite footprints support the OTCIXS net. There are four surface OTCIXS nets (CONUS, LANT/MED, IO, and PAC) and two subsurface nets (LANT and PAC). One unit and only one unit in each net is designated as the NCS/NECOS. The NCS/NECOS provides two primary functions:

- Grant net access to requesting subscribers.
- Provide NCS/NECOS message acknowledgment to transmitting subscribers.

Subscriber Identifications (SIDs) OTCIXS traffic is routed through the use of SIDs. OTCIXS supports a total of 255 SIDs and are assigned by theater managers monthly. Prior to getting under way, all units expecting to participate in the OTCIXS net must request a SID from the theater manager. Units that are expecting to shift from one theater to another must request a SID from each theater manager.

OTCIXS Cycle OTCIXS works in a six-step cycle. The six steps are:

Step	Title	Action
1	OTC Idle	NCS sends a Net Control Block (NCB) that provides the units with NCS SID, Net Precedence, Time, Net Mode, and NCS ACK list. The NCS ACK list is a running list containing the SID and highest message subscriber serial number received by NCS. NCS will now also send an acknowledgment for previously sent messages allow the transmitting units computer to purge the message from the transmit buffer.

Officer-in-Tactical-Command Information Exchange Subsystem (OTCIXS)

OTCIXS Cycle (Continued)

Step	Title	Action
2	Net Request	NCS pauses for about half a second to allow any unit with FLASH traffic to request the net. If one or more units with FLASH traffic request the net, NCS immediately goes to the OTC LINK mode. If no FLASH traffic request the net, NCS will go into a listen mode and allow all units with messages in their queue to send a net request to NCS.
3	OTC Link	NCS now sends a modified NCB granting net access to a given unit. Another half-second pause is given to allow any unit with FLASH traffic to request the net.
4	Subscriber Data	The unit receiving the modified NCS now sends the entire content of the outgoing message buffer.
5	OTC Link	NCS sends another modified NCB to the unit allowing the data to be sent a second time. Another half-second pause is given to allow any unit with FLASH traffic to request the net.
6	Subscriber Data	NCS receives the redundant data and the cycle is complete and now restarts.

Note: If any unit has FLASH traffic to send, the cycle is disrupted to allow the FLASH traffic to be sent before messages of lesser precedence. FLASH message precedence is set by the governing OPREP and should be adhered to.

Net Access Time

On the average, net access time runs between 4 – 8 minutes. However, during JFTEX or other operations, net access times of 15 – 30 minutes have been noted. Keeping OPNOTEs and track reports to a minimum required for conducting operations will allow the net access time to remain high.

Force Over the Horizon Coordinator (FOTC)

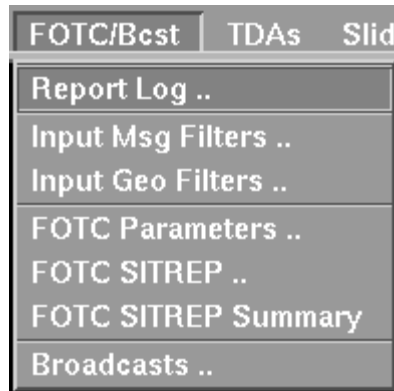
Purpose	<p>Force Over the Horizon Track Coordinator (FOTC) mode is used to synchronize track information for all ships in the group. FOTC has three modes of operation:</p> <ul style="list-style-type: none">• Coordinator (CT)• Participant (PT)• Non-participant (NPT)
Coordinator	<p>The duties of the coordinator include:</p> <ul style="list-style-type: none">• Performs the duties of FOTC as described in the governing OPORDER.• Serves as database manager for entire battle group or group of ships performing same operation:<ul style="list-style-type: none">• Adds, edits, and deletes tracks for all participating units.• Receives reports directly from all participating units.• Broadcasts all data automatically to participants over the FOTC Bcst.• Checks track databases for accuracy every 4 hours by sending a FOTC SITREP to all participating units.
Participant	<p>The participant works directly for the coordinator. The participant is responsible for the following:</p> <ul style="list-style-type: none">• Screens all incoming track reports.• Deletes all track reports not from the designated source to ensure all participants are looking at the same track database picture.• After receiving a FOTC SITREP, responds within 30 minutes with a report that includes all missing track and time mismatches. Also deleted any extra tracks. <p>Note: FOTC will transmit any missing/timelate tracks once reports are received from all units.</p>
Non-participant	<p>The non-participant operates independently and can accept track reports from any source. The operator must conduct track database management.</p>

FOTC/Bcst Menu Option

Purpose

Force Over the Horizon Track Coordinator (FOTC) mode is used to synchronize track information for all ships in the group. One unit is designated as the FOTC coordinator; other ships are designated as FOTC participants. All incoming reports are initially sent to the FOTC coordinator who processes and broadcasts the reports to all FOTC participants. Detailed instructions for FOTC operations are provided later in this lesson.

Pull-down Menu



Descriptions

Menu Option	Function
Report Log	Used to view report message information. The display shows number of reports in the system and the last time a report was sent.
Input Msg Filters	Used to input and maintain filters to filter messages out of incoming FOTC traffic.
Input Geo Filters	Used to input and maintain filters to filter out track data updates from the incoming contact messages. Once filtered out, the filtered messages are not entered into the track database and will not appear on the tactical display.
FOTC Parameters	Sets all parameters for operating in FOTC mode.

FOTC/Bcst Menu Option

Descriptions (Continued)

Menu Option	Function
FOTC SITREP	This option synchronizes the FOTC coordinator with the FOTC participants. When FOTC SITREP is in use, the broadcast is paused and no FOTC traffic can be transmitted until this option is exited. Only the FOTC coordinator uses this option.
FOTC SITREP Summary	This option is used by FOTC participants to determine critical differences between their database and FOTC coordinator's database. When the FOTC coordinator sends a FOTC SITREP, a report is automatically generated by all FOTC participants showing discrepancies between the coordinator's and participants' databases.
Broadcasts	Allows the operator to send HIT, DTC, and FOTC broadcasts. This option also allows operator to edit, add, and delete additional broadcast communications up to a maximum of 12 additional broadcasts for a total of 15 broadcasts. HIT, DTC, and FOTC are preset and cannot be deleted.

FOTC Settings

Menu/Window Option or Action	Coordinator Mode Setup	Participant Mode Setup
Select FOTC/BCST menu from the Geographic Display menu bar and FOTC PARAMATERS from the pull-down menu bar to open the EDIT FOTC/BGDBM CONFIGURATION window. The following actions will all be within the FOTC/BGDBM CONFIGURATION window.		
BGDBM MODE		
	Select COORDINATOR (CT).	Select PARTICIPANT (PT).
LOCAL COMMAND	Enter Unit Name.	Enter Unit Name.
FOTC CT CMD	Enter FOTC name IAW OPTASK FOTC SUPP.	Enter FOTC name IAW OPTASK FOTC SUPP.
FOTC CT SID	Enter own ship SID.	Enter FOTC SID IAW OPTASK FOTC SUPP or monthly SID assignment message.
FOTC BCST SID	Enter the FOTC BCST SID IAW OPTASK FOTC SUPP or monthly SID assignment message.	Enter the FOTC BCST SID IAW OPTASK FOTC SUPP or monthly SID assignment message.
BCST SETUP		
	Select SEND ALL UNSENT.	Select SEND ALL UNSENT.
	Select AUTOSTART (an X will appear in the box when selected).	Select AUTOSTART (an X will appear in the box when selected).
	Enter CYCLE RATE IAW OPTASK FOTC SUPP.	Enter CYCLE RATE IAW OPTASK FOTC SUPP.
BROADCAST HEADER		
FM:	Enter FOTC name IAW OPTASK FOTC SUPP.	Enter unit name IAW OPTASK FOTC SUPP.
TO:	Enter BCST name IAW OPTASK FOTC SUPP.	Enter BCST name IAW OPTASK FOTC SUPP.

FOTC Settings

Menu/Window Option or Action	Coordinator Mode Setup	Participant Mode Setup
CLASSIFICATION	Select SECRET.	Select SECRET.
PRECEDENCE	Select IMMEDIATE.	Select IMMEDIATE.
Activate UPDATE TOGGLES window by conducting a right click of the track ball and selecting UPDATE TOGGLES from the pop-up menus.	Select the following: AUTO NEWTRACK: OFF AUTO UPDATE: ON AUTO MERGE: ON GEOFEASIBILITY: ON USE BGDBM STN: ON (an X will appear in the box when ON). Select OK.	Select the following: AUTO NEWTRACK: ON AUTO UPDATE: ON AUTO MERGE: ON GEOFEASIBILITY: ON USE BGDBM STN: ON (an X will appear in the box when ON). Select OK.
Select FILTER button.	Configure the output filter exactly IAW OPTASK FOTC SUPP, BG Filter Management Plan or Intentions Message.	N/A unless specifically directed by FOTC.
With the EDIT FOTC/BGDBM CONFIGURATION window still open, choose the COMMS option from the MAIN menu bar and select AUTO-FORWARD TABLE from the pull-down menu to activate the MESSAGE AUTO-FORWARD window.		
Select ADD (if your unit has previously conduct FOTC operations, verify the following setting are correct).	SRC CHANNEL: LOCAL ON/OFF: ON SOURCE: Type exactly as the entry you previously entered into the TO: line in the BROADCAST HEADER window of the FOTC/BGDBM CONFIGURATION window. MSG TYPE: All ON (X should appear in each box). PRECEDENCE: All ON (X should appear in each box). SID: Enter FOTC SID IAW OPTASK FOTC SUPP.	SRC CHANNEL: LOCAL ON/OFF: ON SOURCE: Type exactly as the entry you previously entered into the TO: line in the BROADCAST HEADER window of the FOTC/BGDBM CONFIGURATION window. MSG TYPE: All ON (X should appear in each box). PRECEDENCE: All ON (X should appear in each box). SID: Enter FOTC SID IAW OPTASK FOTC SUPP.

FOTC Settings

Menu/Window Option or Action	Coordinator Mode Setup	Participant Mode Setup
The DESTINATION CHANNEL box on the EDIT FOTC/BGDBM CONFIGURATION window should now show an auto-forward table association. If one does not appear, click on the FM: line in the BROADCAST HEADER box. If the association still does not appear, the TO: line of your BROADCAST HEADER doesn't match the TO: line of your auto-forward table.		
Select OK to exit the EDIT FOTC/BGDBM CONFIGURATION window.		
DELETE EXISTING FOTC TRACK NUMBERS? window will appear with YES/NO option.	Select YES only if this is the initial pre-underway setup or if joining a new FOTC environment. NO, in all other cases.	Select YES only if this is the initial pre-underway setup or if joining a new FOTC environment. NO, in all other cases.
Select COMMS from the Main Menu BAR and NAV UPDATE RATE from the pull-down menu.		
NAV UPDATE RATE	Enter the NAV UPDATE RATE IAW OPTASK FOTC SUPP. If no specific guidance is given, the rate should be one-half of the broadcast cycle rate entered earlier.	Enter the NAV UPDATE RATE IAW OPTASK FOTC SUPP. If no specific guidance is given, the rate should be one-half of the broadcast cycle rate entered earlier.
Restart the NAV interface in the COMMUNICATIONS pull-down menu in order for any changes to take effect.		
Verify Communications Channels by selecting COMMS from the Main Menu Bar and COMMUNICATIONS from the pull-down menu. The COMMUNICATIONS window will appear. Select all applicable communication interfaces and activate the right-track ball pop-up menu and select start.		
Ensure no Input Message Filters are activated (unless required by the OPTASK FOTC SUPP) by selecting FOTC/BCST from the Geographic Menu Bar and INPUT MSG FILTERS from the pull-down menu. If no entries are made or active (STATUS ON), all MSGS will be accepted and decoded.		
Ensure no Input GEO Filters are activated (unless required by the OPTASK FOTC SUPP) by selecting FOTC/BCST from the Geographic Menu Bar and INPUT GEO FILTERS from the pull-down menu.		

FOTC Settings

Menu/Window Option or Action	Coordinator Mode Setup	Participant Mode Setup
Select TRACKS from the Geographic Menu Bar, Link Controls from the pull-down menu, and Link DLRPs from the cascading menu. This will activate the LINK DLRPs window.		
LINK DLRPs	Enter DLRP in the LINK A window.	Enter DLRP in the LINK A window.
	Enter own ship's PU number in the Owntrack NTDS TN.	Enter own ship's PU number in the Owntrack NTDS TN.
	Select PADS TGL (X should appear in the box).	Select PADS TGL (X should appear in the box).
Select TRACKS from the Geographic Menu Bar, Link Controls from the pull-down menu, and Link Archive from the cascading menu. This will activate the LINK Archive window.		
LINK ARCHIVE	Enter archive rates specified in the OPTASK FOTC SUPP unless another unit is designated as the Link Entry Ship.	Turn Archive OFF unless directed by OPTASK FOTC SUPP.
Select TRACKS from the Geographic Menu Bar, Link Controls from the pull-down menu, and Link Autodelete from the cascading menu. This will activate the LINK Autodelete window.		
LINK AUTODELETE	Enter rate specified in the OPTASK FOTC SUPP in the SET ALL TO: field. Select the ON button (X will appear in the box).	Set as specified in the OPTASK FOTC SUPP. Five minutes is a good rule if not specified in the OPTASK FOTC SUPP.
Verify that no LINK A Filters are activated by selecting TRACKS from the Geographic Menu Bar, Link Controls from the pull-down menu, and Link Filters from the cascading menu. This will activate the LINK Filters window.		

Lesson 7 Self-Quiz

Questions

1. GCCS evolved from the Coast Guard's desire to replace _____.
 - A. paper charts
 - B. SPA-25
 - C. VTS
 - D. DRT
2. User accounts are assigned to _____.
 - A. individuals
 - B. watch officers
 - C. watch stations
 - D. GCCS-operators
3. List three responsibilities of the GCCS-M security manager.
 - a. _____
 - b. _____
 - c. _____
4. What field on the Create Account window does the GCCS-M computer assign?
 - A. User ID
 - B. Password
 - C. User Name
 - D. User Number
5. What is the purpose of having multiple-user profiles?

6. The bridge watch stander account cannot access the PRINT SCREEN menu option. What is the probable cause?

7. When files are ARCHIVED from a database, the files are copied to a holding area known as the _____.
 - A. clipboard
 - B. archive board
 - C. holding board
 - D. temp storage board

Lesson 7 Self-Quiz

Questions (Continued)

8. After restoring files to the database, what is your next step?
- _____
9. What menu option is used to make a printer a default printer?
- A. PRINTER OPTIONS
 - B. PRINTER CHOOSER
 - C. DEFAULT CHOOSER
 - D. PRINTER DEFAULTS
10. What are the three preset broadcasts set up under the Broadcasts menu option?
- _____
- _____
- _____
11. How many units are designated as NCS/NECOS for each OTCIXS net?
- A. 1
 - B. 4
 - C. 39
 - D. 255
12. What are the two primary functions of NCS/NECOS?
- _____
- _____
13. What are the three FOTC modes of operation?
- _____
- _____
- _____
14. What must the operator in the participant FOTC mode do to all extra tracks following receipt of a FOTC SITREP?
- A. Delete
 - B. Update
 - C. Transmit
 - D. Broadcast
-

Answers to Self-Quiz

Question	Answer	Reference
1	D	7-3
2	A	7-5
3	a. Creating and deleting user accounts. b. Creating, editing, and deleting user profiles. c. Modifying user permissions and menu access.	7-5
4	A	7-7
5	To allow an operator to perform certain functions which you do not want every operator to access.	7-8
6	The bridge operator profile options for PRINT SCREEN are disallowed.	7-9
7	A	7-12
8	Clear the contents of the clipboard.	7-13
9	B	7-14
10	HIT, DTC, FOTC	7-19
11	A	7-15
12	Grant access to requesting subscribers Provide NCS/NECOS message acknowledgment to transmitting subscribers.	7-15
13	Coordinator, Participant, Non-Participant	7-17
14	A	7-17

Lesson 8

INTELLIGENCE

Overview

Introduction

Intelligence is an ever-growing field for the radarman rate. The radarman has a unique chance to contribute to this important Coast Guard mission not only at the unit level but also at the national level. This lesson gives an overview of Coast Guard intelligence.

Objectives

After completing this lesson, you will be able to:

- **DEFINE** the following terms:
 - *Intelligence* and its three levels – *strategic*, *operational*, and *tactical*
 - *Counterintelligence*
 - *Foreign intelligence*
 - *Security*
 - **LIST** the five steps of the Intelligence cycle.
 - **DETERMINE** the five categories of intelligence gathering.
 - **IDENTIFY** the five types of intelligence analysis.
 - **IDENTIFY** the agencies currently involved in intelligence collection and dissemination.
 - **IDENTIFY** the offices comprising the Coast Guard intelligence organization.
 - **STATE** the two types of collection management processes used by the Coast Guard intelligence community.
 - **IDENTIFY** the types of intelligence reports and when they are used.
-

Overview

References

- United States Coast Guard Operational Intelligence Handbook
 - Consumer's Guide to Intelligence (CIA)
 - National Foreign Intelligence Community Course Textbook
 - An Intelligence Resource Manager's Guide
 - COMPACAREA Intelligence Information Report Handbook
 - COMPACAREA Photographic Intelligence Collection Reference Guide
 - COMLANTAREA FIR Preparation Guide
 - Fundamentals of Collection Management, Student Guide
 - Coast Guard Intelligence Manual (Draft 2000 Revision)
 - Annex B to LANTAREA SOP - Command Intelligence Officers Handbook
 - PACIFIC AREA INSTRUCTION 3821.1 – Coast Guard Pacific Area Field Intelligence Report
-

Performance Qualification

This lesson covers the following performance qualifications for RD1 from the Enlisted Qualifications Manual, COMDTINST 1414.8 (series):

G.6.01 – **PREPARE** a Field Intelligence Report (FIR) in accordance with LANTAREAINST 3820.2 and PACAREAINST 3821.1

Glossary

Terms and definitions for this lesson can also be found in the glossary.

Definitions and Levels of Intelligence

Terms Simply put, intelligence is information.

Term	Description
Intelligence	The information is of interest to a consumer who desires to know more about the activities, capabilities, and intentions of the subject of the information.
Foreign intelligence	Relates to any foreign country, including that country's politics, military forces, economy, foreign policy, etc.
Counterintelligence	Refers to those activities undertaken to counter foreign intelligence efforts.
Security	Is the measures taken to protect information that may be valuable to a foreign government.

Levels Intelligence is broken down into three levels: strategic, operational, and tactical. These levels are not divided by distinct lines and often change, depending on the position of the consumer.

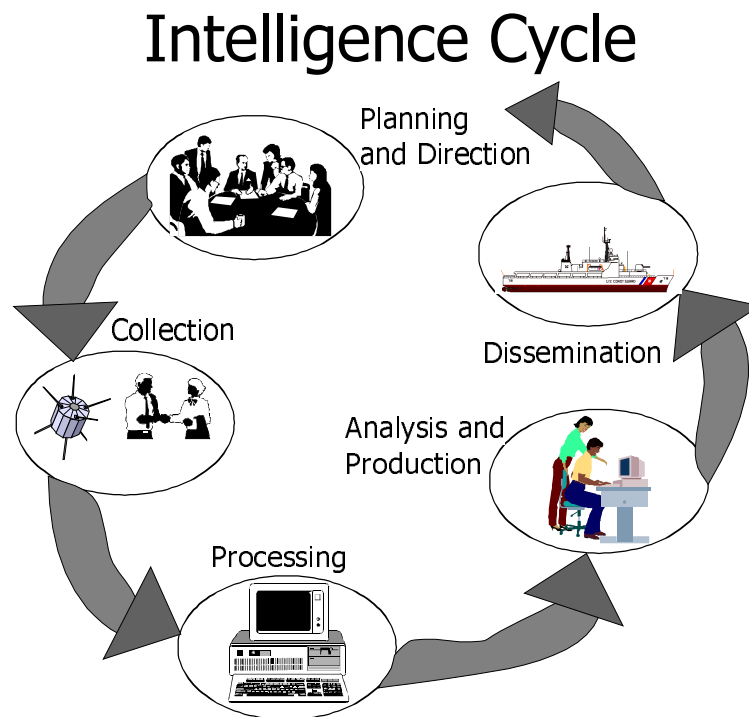
Level	Description
Strategic Intelligence	<p>Intelligence required for policy decisions and military planning at the national or international level. "Big Picture" intelligence.</p> <p>Example: Political and economic situations in Caribbean countries that may affect the number of migrants fleeing the country.</p>
Operational Intelligence	<p>Intelligence required for planning and executing all types of operations. Includes military, law enforcement, or contingency planning. "Fleet" intelligence.</p> <p>Example: Terrorist capabilities and threat conditions for establishing security for a port facility.</p>
Tactical Intelligence	<p>Intelligence required for planning and execution of tactical operations. "Battlefield" intelligence.</p> <p>Example: The position of a suspected drug smuggling vessel.</p>

Intelligence Cycle

Definition

The intelligence cycle is a continual (never ending) process through which intelligence required by consumers is gathered, analyzed, converted into a useable form, and provided to the consumer.

Five Steps



Planning and Direction

The intelligence cycle begins when a need for intelligence information to help accomplish a mission arises. Based on the need, collection and production requirements are developed and promulgated to the members of the intelligence community who can fill the requirement.

Intelligence Cycle

Collection

Once the requirements have been identified, the desired information must be gathered using one of the five categories of intelligence collection. The five categories are:

- Human-source intelligence (HUMINT) – Collection by human beings. This category includes clandestine and overt collection, debriefing of personnel, and official contacts with foreign governments.
- Signals intelligence (SIGINT) – Interception of communications, radar and telemetry signals. Two subcategories of this are:
 - Communications intelligence (COMINT) – Intercept of communications by other than intended recipients.
 - Electronic intelligence (ELINT) – Intercept of non-communications electromagnetic radiation such as radar signals.
- Imagery intelligence (IMINT) – Gathering involving sensors to collect photographic, infrared, and other types of images.
- Measured and signature intelligence (MASINT) – This collection employs a broad group of disciplines (including nuclear, optical, radio frequency, acoustics, seismic, and materials science) to locate, identify, or describe distinctive characteristics of targets. An example of this type of intelligence includes establishing an electronic signature of a submarine collected by sonar.
- Open-source intelligence (OSINT) – Intelligence gathered from a publicly available source such as newspapers or television.

Processing

This step takes the raw data gathered during the earlier phases and puts it into a form useable by the intelligence analyst.

Examples: Decoding of messages or translation of documents.

Intelligence Cycle

Analysis and Production

Turning processed data into a finished product is the goal of this step. Since intelligence supports such a wide variety of requirements, finished intelligence comes in many different forms. These forms are broken down into five categories:

- Current intelligence involves day-to-day events which seek to apprise the consumer of new developments and related background, to assess their significance, to warn of their near-time consequences, and to signal potentially dangerous situations in the near future
- Estimative intelligence deals with what might or might not happen. It starts with known facts and migrates into the unknown.
- Warning intelligence sounds an alarm or gives notice to consumers. An example would be a warning issued of a possible mass alien migration from a Caribbean country.
- Research involves in-depth study of issues, leading to the production of encyclopedic-type information and is divided into two sub-categories:
 - Basic intelligence consists primarily of geographic, demographic, social, military, and political data on foreign countries. This material is presented in the form of maps, atlases, force summaries, and handbooks.
 - Intelligence for operational support is tailored, focused, and rapidly produced for operators and planners. This type of production uses a variety of input, including current, estimative, warning, basic research, as well as scientific and technical (S&T) intelligence.
- Scientific and technical intelligence (S&T) uses all source data to produce information on the technical developments and characteristics, performance, and capabilities of foreign technologies.

Dissemination

During this step, finished intelligence is delivered to the consumer.

History of Coast Guard Intelligence

Origins of U.S. History

Prior to the end of World War II, the United States had no standing peacetime intelligence apparatus. Following the end of World War II, President Truman was determined to establish an agency to that would collect, collate and study intelligence information from many sources around the world and produce finished intelligence products for policy makers. The main focus of this group would be facing the prospects of a protracted ideological struggle with the Soviet Union.

National Security Act of 1947

The National Security Act of 1947 created the first framework for the managerial structure of a national intelligence community. The major effect of this law was the creation of three new entities:

- The National Security Council
 - Director of Central Intelligence
 - Central Intelligence Agency
-

Current Intelligence Agencies

The only two intelligence agencies that exist by law are the CIA (1947) and the National Mapping and Imagery Agency (1996). All other intelligence agencies were created by executive directives and can be dismantled by another executive directive.

Current intelligence agencies that the Coast Guard interacts with include:

- Director of Central Intelligence (DCI)
 - Central Intelligence Agency (CIA)
 - Defense Intelligence Agency (DIA)
 - National Security Agency (NSA)
 - National Reconnaissance Office (NRO)
 - National Imagery and Mapping Agency (NIMA)
 - Department of State, Bureau of Intelligence and Research (INR)
 - Federal Bureau of Intelligence (FBI)
 - Department of Treasury, Office of Intelligence Support (OIS)
 - Department of Energy
 - El Paso Intelligence Agency (EPIC)
 - National Drug Intelligence Center
 - Joint Interagency Task Force (JIATF) East/West
-

Intelligence Agencies

Director of Central Intelligence (DCI)

The DCI and his staff are the top of the U.S. intelligence pyramid and has three distinct roles:

- Serves as head of Intelligence Community.
 - Serves as principal intelligence advisor to the President.
 - Heads the Central Intelligence Agency.
-

Central Intelligence Agency (CIA)

The CIA is the sole independent agency in the intelligence community. Its mission is to support:

- the President.
 - the National Security Council.
 - other officials who make and execute national security policy.
-

Defense Intelligence Agency (DIA)

A three-star military officer heads the DIA, which is the senior military component of the intelligence community. DIA's mission is to provide all-source intelligence to U.S. Armed Forces.

National Security Agency (NSA)

A three-star military officer also heads this combat support agency. The NSA plans, coordinates, directs, and performs signal intelligence (SIGINT) and information security (INFOSEC). Its two primary missions are:

- Exploit foreign communications and non-communications signals.
 - Protect U.S. electronic information from being exploited.
-

National Reconnaissance Office (NRO)

The NRO, as the single national program to meet U.S. government intelligence needs through space borne reconnaissance, is responsible to ensure the United States has the technology and space borne assets needed to acquire intelligence worldwide. This mission is accomplished through research, development, acquisition, and operation of satellites.

National Imagery and Mapping Agency (NIMA)

This newest of intelligence components (established in 1996) provides timely, relevant, and accurate imagery; imagery intelligence; and geospatial information in support of national security objectives.

Intelligence Agencies

Department of State, Bureau of Intelligence and Research (INR)

The INR is the State Department's primary source of analysis of global developments. Its mission is to provide the Secretary of State with timely, objective assessments of global events. The INR also coordinates the handling of issues that arise in the course of intelligence, security, counterintelligence, investigative, and special operations.

Federal Bureau of Investigation (FBI)

The FBI's intelligence mission is to:

- Protect the United States from hostile intelligence efforts.
-

Department of Treasury, Office of Intelligence Support (OIS)

This agency was established to connect the Treasury Department with the National Security Council. The Department of Treasury provides Embassy economic reporting through State Department channels to members of the intelligence community and to other U.S. Government agencies concerned with international economic policy.

Department of Energy (DOE)

The responsibilities of the DOE are to:

- Detect and defeat foreign intelligence services from acquiring information in the DOE's programs, facilities, technology, and personnel.
 - Provide technical and analytical support to DCI.
 - Monitor nuclear proliferation, nuclear weapons technology, fossil and nuclear energy, and science and technology.
-

El Paso Intelligence Center (EPIC)

EPIC is a joint law enforcement agency formed to collect, process, and disseminate information regarding the smuggling of drugs, weapons, and aliens.

National Drug Intelligence Center (NDIC)

NDIC provides strategic and organizational counterdrug intelligence inside U.S. borders.

Coast Guard Intelligence

Overview

Although the Coast Guard is not a formal member of the intelligence community, it provides intelligence support to the member agencies. The U.S. Coast Guard Intelligence Coordination Center (ICC) was commissioned in 1984 to focus on, and better respond to, the complex and growing maritime intelligence requirements of Coast Guard operational commanders. ICC serves as the primary interface between the intelligence community and the Coast Guard.

The Coast Guard works closely with other members of the intelligence community and the law enforcement community in the “war on drugs.” Its primary mission in this arena is the monitoring of maritime narcotics trafficking. Since the Coast Guard does not fall under restrictions imposed on the Department of Defense and Central Intelligence Agency, it is allowed to collect information on U.S. citizens as well as conduct its law enforcement role.

Coast Guard Intelligence Organization

Assistant Commandant for Operations (G-O)

This office is responsible for managing the Coast Guard intelligence program.

Office of Capabilities and Intelligence (G-OCI)

G-OCI is the intelligence program manager and is responsible for program oversight functions including:

- Setting policy and doctrine.
 - Providing resources.
 - Planning, programming, budgeting, and training intelligence resources.
 - Serving as the Coast Guard Special Security Officer (SSO).
 - Administering General Defense Intelligence Program (GDIP) funding and personnel.
 - Issuing intelligence badges and credentials.
 - Monitoring and coordination intelligence-related research and development.
 - Overseeing intelligence-related special access programs.
 - Serving as national level liaison with members of the intelligence community and law enforcement communities.
 - Serving as Executive Agent for the Joint Maritime Information Element (JMIE).
 - Providing support to external intelligence billets.
-

Commandant (G-O-CGIS)

G-O-CGIS is the program manager for the Coast Guard Investigative Service (CGIS) Program. CGIS was established in 1996 to conduct criminal and background investigations, gather intelligence, provide protective service operations, and support counterterrorism efforts. CGIS special agents can be tasked with operational intelligence duties including HUMINT collection and reporting.

Coast Guard Intelligence Organization

Commandant (G-CFI)

G-CFI is responsible for:

- Physical security, including technical guidance for design construction, physical security, and security of Sensitive Compartmented Information Facilities (SCIFs).
- Classification authority within the Coast Guard.
- Force protection.
- Counterintelligence.

This office also has the authority for disclosure of classified material to foreign governments.

Commandant (G-OCC)

G-OCC serves as the Information Officer of the Assistant Commandant for Operations (G-O). This office also coordinates input from all programs in the development of C4I and sensor-related requirements including acquiring, installing, and implementing Coast Guard and other agency intelligence support systems.

Commandant (G-S)

G-S coordinates with Commandant (G-OCI) to support the deployment of intelligence systems.

Coast Guard Intelligence Organization

Intelligence Coordination Center (ICC)

ICC is co-located at the National Maritime Intelligence Agency (NIMA) in Suitland, Maryland with the Office of Naval Intelligence (ONI). The missions of the ICC are to:

- Serve as the intelligence staff for the Commandant and Headquarters staff.
 - Provide finished, strategic intelligence to Coast Guard decision makers and policymakers.
 - Provide, when appropriate, operational and tactical support to staff and operational elements within the Coast Guard.
 - Manage intelligence collection (receives, validates, prioritizes, catalogs, and disseminates intelligence collection requirements to area intelligence staffs).
 - Maintain 24-hour all-source intelligence center.
 - Serve as Coast Guard Indications and Warning (I&W) facility.
 - Maintain current, accurate picture of maritime threats to the United States.
 - Maintain liaison with the collection, production, and dissemination elements of the intelligence community and other law enforcement agencies.
 - Coordinate time-sensitive collection requirements with the intelligence community.
 - Provide force protection/anti-terrorism reporting in support of Coast Guard personnel and facility security.
-

Coast Guard Intelligence Organization

Area Intelligence Staffs

Area staffs are responsible for intelligence support to district and area units within geographic area of responsibilities. The area staff's missions are to:

- Serve as the intelligence staff for the area commander and staff.
- Manage, coordinate, and execute assigned technical collection programs and operations.
- Identify intelligence gaps.
- Initiate collection requirements.
- Analyze, produce, and disseminate operational intelligence.
- Analyze, produce, and disseminate tactical and strategic intelligence as required to support Maritime Defense Zone (MARDEZ) missions.
- Prepare intelligence annexes to Area/MARDEZ OPORDs and OPLANs.
- Maintain liaison to fleet commanders-in-chief (CINCs) to support MARDEZ units and ensure smooth transition of intelligence duties in the event of activation.
- Coordinate and oversee intelligence planning and budgeting for all districts in AOR.

District Intelligence Staffs

The district intelligence support and responsibilities vary greatly based on the operations and functions in each district. General district staff's missions are to:

- Collect, analyze (tactical level), and rapidly disseminate intelligence in support of district Coast Guard operations.
 - Identify intelligence requirements.
 - Prepare and execute collection plans.
 - Conduct liaison with regional and local law enforcement, intelligence, and security organizations.
 - Prepare district OPORDs and OPLANs.
-

Coast Guard Intelligence Organization

Individual Units

The Coast Guard's varied missions, geographical areas, level of training, and the fact that intelligence is often a collateral duty make defining the duties of each unit difficult. The unit level command intelligence officer (CIO) duties include, but are not limited to:

- Serve as liaison between the unit and its serving intelligence staff.
 - Interface with the intelligence community and law enforcement organizations at the appropriate level.
 - Maintain lookout lists.
 - Conduct intelligence briefings:
 - Pre-patrol/pre-operations briefs.
 - Daily intelligence briefs.
 - Boarding pre-briefs and debriefs.
 - Advise and assist unit command structure in intelligence matters:
 - Submit Requests for Intelligence/Information (RFIs).
 - Query intelligence databases (i.e., LEIS).
 - Manage intelligence collection:
 - Review current collection tasking.
 - Generate intelligence documents supporting collection and reporting requirements.
 - Submit Intelligence Information Reports (IIRs), Sighting and Boarding Reports (SABR), Field Intelligence Reports (FIRs), etc.
 - Develop a network of local contacts (when appropriate).
 - Manage intelligence library.
 - Conduct intelligence training.
-

Collection Management

Overview

Managing what intelligence (information) needs to be collected is a highly technical and confusing process. Each agency has its own intelligence language that further confuses the novice.

If every unit decided on its own what intelligence to report or not report, the Coast Guard intelligence community would have an extremely difficult time meeting the needs of their Coast Guard and other agency customers. The Coast Guard uses the Collection Requirements Management and Collection Operations Management processes to let the collectors know what needs to be collected.

Collection Requirements

Collection requirements are utilized by intelligence agencies to identify the intelligence to be gathered by individual collectors. The two products used by the Coast Guard are:

- HUMINT Collection Requirement (HCR) – Provides the collector detailed guidance to focus and target collection efforts against the stated information needs. HCRs are used to collect foreign intelligence and intelligence of national importance.
 - Coast Guard Standing Requirement (CGSR) – Similar in format to the HCR but it focuses on specific Coast Guard domestic information that can only be legally collected by USCG personnel.
-

Collection Requirements Management (CRM)

The Collection Requirements Management process acts to control the events necessary to collect, exploit, and disseminate intelligence. A major CRM activity is the development of clear statements of the intelligence need.

Coast Guard ICC, as the primary collection requirement manager, works with the two area commanders to establish Coast Guard Standing Requirements (CGSRs) as well as needs from other agencies.

A variety of tools are used to assist the collector and analyst in the intelligence cycle. They are used to provide support, guidance, and feedback for collection management. Some commonly used tools are:

- Collection Opportunity (COLOP) – Increases priority of collection requirement in response to unique or fleeting collection opportunities. Example: Port call in Vladivostok as opportunity to photograph condition of port infrastructure.
-

Collection Management

Collection Requirements Management (CRM) (Continued)

- Collection Support Brief (CSB) – Translates complex technical information into layman’s terms. The CSB is used when the collector has no technical experience in that area of collection;
- Notice of Intelligence Potential (NIP) – This message is provided by the collector to analytical staff to inform the staff of a potential collection opportunity. Example: The collector may be visiting a port of call and wishes to know if any collection requirements exist for that port.
- Consumer Evaluation – This instrument gives the analyst an opportunity to tell the collector directly what the collector is doing right; why that information is of value; how that information is being used; and what else to do additionally if the opportunity arises again.

Collection Operations Management

A collection operations manager is responsible for a single intelligence discipline (i.e. migrant smuggling) and responds to the tasking requests received from CRM authorities. The manager normally reviews all collection requirements assigned and then translates the requirement into specific tasking orders.

The Coast Guard does not currently have a Collection Operations Manager.

Intelligence Reports

Overview

There are many ways to transmit collected intelligence to the analysts. Coast Guard operational units utilize the Intelligence Information Report (IIR) and Field Intelligence Report (FIR) to deliver the intelligence to the analysts.

General Guidance

Intelligence reports should be timely and complete. Since the value of most information erodes over time, it is important to get the information to the respective analysts quickly, but without sacrificing accuracy.

Quantity does not always equal quality. Undue emphasis on quantity of reports can be damaging to overall collection focus. The reporter must ensure that reports sent are maintained at the highest standard and are not sent for the sake of send a report.

Completeness of an intelligence report means that it contains all material relevant to the subject within its scope. The reporter should not assume the reader has the source's familiarity with the subject or reporting environment. This is particularly important when writing IIRs, as non-Coast Guard or DOD personnel can read them. The best method for framing the report is to answer the questions: WHO, WHAT, WHERE, WHEN, WHY and HOW.

Intelligence Information Report (IIR)

The IIR is used to report on intelligence that is of value to agencies outside of the Coast Guard. The IIR provides information to agencies concerned with national security and is used by all agencies in the intelligence community. An IIR is normally in response to a HUMINT Collection Requirement (HCR).

A significant part of writing an IIR is correctly formatting it. These reports are machine-read and automatically re-addressed to the appropriate agencies in and out of the intelligence community. United States law prohibits non-law enforcement intelligence organizations from collecting information on U.S. citizens, regardless of where that information is collected, with certain deviations permitted. Therefore, it is essential that when an IIR refers to a U.S. person or entity, that this information is placed correctly in the IIR with the allowable exemptions noted. This permits the auto-forward feature on IIRs to safeguard the information from being routed incorrectly.

Intelligence Reports

Field Intelligence Report (FIR)

The FIR is a Coast Guard-specific report used to move information of interest to the next command level. Releasing FIRs to external agencies should be coordinated with your servicing intelligence staff. A FIR is normally in response to a CGSR or the CIO initiative.

Example: A boarding officer writes a FIR about possible illegal summer flounder possession by a fishing vessel. This FIR could be released to the state fisheries officers for enforcement purposes.

The FIR has a relatively simple format, which allows junior and inexperienced personnel to report information. Each area intelligence staff has their own FIR format; however, both formats contain the same basic fields.

FIR Format

NOTE

At time of publishing, LANTAREA and PACAREA were developing a standard Coast Guard FIR format. The current references for writing FIRs are:

- PACIFIC AREA INSTRUCTION 3821.1 – Coast Guard Pacific Area Field Intelligence Report
 - Annex B to LANTAREA SOP - Command Intelligence Officers Handbook
-

Lesson 8 Self-Quiz

Questions

1. Match the term in column A with its definition in Column B. Use each letter only once.

<u>Column A</u>	<u>Column B</u>
_____ 1. Intelligence	a. Intelligence required for planning and executing all types of operations.
_____ 2. Counter-intelligence	b. Information which is of interest to a consumer.
_____ 3. Security	c. Used to counter foreign intelligence efforts.
_____ 4. Foreign Intelligence	d. Actions taken to protect information.
_____ 5. Strategic Intelligence	e. Information gathered by foreign intelligence agents about their own country.
_____ 6. Tactical Intelligence	f. "Big Picture" intelligence.
_____ 7. Operational Intelligence	g. Information about a country's political parties, military, and economy.
	h. Intelligence used at the operational unit level.

2. List the five steps of the intelligence cycle.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
-

Lesson 8 Self-Quiz

Questions (Continued)

3. Which of the following is a subcategory of SIGINT?
 - A. COMINT
 - B. HUMINT
 - C. IMINT
 - D. OSINT
 4. A source of OSINT would be _____.
 - A. classified documentation
 - B. satellite photography
 - C. foreign radar signals
 - D. newspapers
 5. You are tasked with taking pictures of vessels moored in Port Au Prince, Haiti. What type of intelligence gathering collection method is being utilized?

 6. What are the five types of intelligence analysis?
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 7. Which of the following agencies is responsible for exploiting foreign communications signals?
 - A. CIA
 - B. DIA
 - C. NSA
 - D. DCI
 8. Which agency is responsible for maintaining the U.S. space reconnaissance program?
 - A. NRO
 - B. ICC
 - C. FBI
 - D. NIMA
-

Lesson 8 Self-Quiz

Questions (Continued)

9. Match the office in column A with its responsibility in column B. Use each responsibility only once.

Column A

Column B

- | | |
|-------------------|--|
| _____ 1. G-O | a. Provides technical guidance for physical security. |
| _____ 2. G-OCI | b. Serves as program manager for CG Investigative Service. |
| _____ 3. G-O-CGIS | c. Prepares district OPORDs and OPLANs. |
| _____ 4. G-CFI | d. Supports the deployment of intelligence systems. |
| _____ 5. G-OCC | e. Manages CG intelligence program. |
| _____ 6. G-S | f. Serves as information officer for Asst. Commandant of Operations. |
| _____ 7. ICC | g. Serves as intelligence staff for Commandant (also, co-located with NIMA). |
| | h. Sets policy and doctrine. |

10. What are the two types of collection management processes used by the Coast Guard intelligence community?

a. _____

b. _____

11. You are tasked with writing an intelligence report about the capabilities of a new foreign patrol boat that you recently toured. What type of intelligence report would you write?

Answers to Self-Quiz

Question	Answer	Reference
1	1. b 2. c 3. d 4. g 5. f 6. h 7. a	8-3
2	Planning and Direction Collection Processing Analysis and Production Dissemination	8-4
3	A	8-5
4	D	8-5
5	IMINT	8-5
6	Current intelligence Estimative intelligence Warning intelligence Research Scientific and technical intelligence	8-6
7	C	8-8
8	A	8-8
9	1. e 2. h 3. b 4. a 5. f 6. d 7. g	8-11 – 8-13
10	Collection Requirements Management Collection Operations Management	8-16
11	Intelligence Information Report (IIR)	8-18

Appendix A

PAMPHLET REVIEW QUIZ

1. JQRs are to be written in the same format as _____.
 - A. Standard Answer Books
 - B. Navy PQS booklets
 - C. CG standard letters
 - D. business letters
2. Maintaining a comprehensive record of all PQS/JQR completions for the unit is the responsibility of the _____.
 - A. operations officer
 - B. executive officer
 - C. training officer
 - D. command chief
3. To be considered satisfactory, exercises must have a numerical minimum score of _____.
 - A. 62.5 %
 - B. 75.0 %
 - C. 85.5 %
 - D. 92.5 %
4. The classification of UNDERWAYNOTE C3821.1 is _____.
 - A. Secret
 - B. Classified
 - C. Top Secret
 - D. Confidential
5. Cancellation dates do not apply to instructions and _____.
 - A. references
 - B. directives
 - C. manuals
 - D. notes
6. Which of the following is a required paragraph for an instruction?
 - A. Changes
 - B. Signature
 - C. Discussion
 - D. Appendixes
7. Which of the following frequencies must be guarded at all times aboard a WMEC?
 - A. 243.0 MHz
 - B. 121.5 MHz
 - C. 123.1 MHz
 - D. 2182 KHz
8. The primary source for determining required frequencies for an upcoming operation is _____.
 - A. LANTAREA SOP
 - B. OPTASK Comms
 - C. OPTASK Kilo
 - D. Annex Charlie

9. The COMSEC section of a communications plan should include ____.

- A. message handling procedures
- B. Beadwindow procedures
- C. secondary frequencies
- D. frequency plan

10. Total water current is best-determined using ____.

- A. datum marker buoys
- B. computer-aided SAR programming (CASP)
- C. SARMIS
- D. sea current

11. Uncorrected sweep width must be adjusted for all the following except ____.

- A. aircraft speed
- B. weather
- C. fatigue
- D. datum

12. A search pattern designated with SSR is a ____.

- A. sector single-unit return search
- B. square single-unit radar search
- C. square multi-unit radar search
- D. sector single-unit radar search

13. SITREPs should be submitted as soon as details of a case become clear and AT LEAST every ____ hours.

- A. 2
- B. 3
- C. 4
- D. 5

14. The primary duty of the piloting officer is to ____.

- A. conn the ship
- B. evaluate fix accuracy
- C. log recommendations
- D. maintain contact picture

15. Which position may be combined with the shipping radar operator?

- A. Shipping officer
- B. Navigation plotter
- C. Shipping log keeper
- D. Navigation log keeper

16. During a precision anchorage when the ship is within 1,000 yards of the anchorage, fixes should be taken ____.

- A. every 3 minutes
- B. every 2 minutes
- C. every minute
- D. continuously

17. The typical radar system being used throughout the Coast Guard is the ____.

- A. AN/SPS-73
- B. AN/SPS-64
- C. AN/SPS-40
- D. AN/SPS-10

18. Link 11 can be used to expand a cutter's ____ horizon.

- A. radar
- B. visual
- C. tactical
- D. strategic

19. A hijacking is indicated by a mode 3/A code of _____.

- A. 7800
- B. 7700
- C. 7600
- D. 7500

20. TACAN provides an aircraft with range, a unit-specific identity code, and _____ bearing.

- A. true
- B. horizon
- C. relative
- D. magnetic

21. STC was first installed aboard _____.

- A. CGC HAMILTON
- B. CGC TAHOMA
- C. CGC ALERT
- D. CGC MAUI

22. Which of the following is NOT a default GCCS-M user profile?

- A. System Admin
- B. Security Admin
- C. JMCIS Operator
- D. GCCS-M Operator

23. How many SIDS are supported by OTCIXS?

- A. 55
- B. 155
- C. 255
- D. 355

24. What FOTC mode operates independently and can accept track reports from any source?

- A. Non-participant
- B. Participant
- C. NCS
- D. PT

25. Simply put, intelligence is _____.

- A. information
- B. communication
- C. collected by CGIS only
- D. undertaken to counter foreign intelligence efforts

26. Finished intelligence is delivered to the consumer during which step of the intelligence cycle?

- A. Dissemination
- B. Processing
- C. Collection
- D. Analysis

27. OSINT is gathered from _____.

- A. intercepts of foreign communications
- B. publicly available sources
- C. satellite imagery
- D. radar signals

28. The office responsible for managing the Coast Guard intelligence program is _____.

- A. G-OCI
- B. G-OLQ
- C. G-OP
- D. G-O

Appendix B

PAMPHLET REVIEW QUIZ – ANSWER KEY

QUESTION	ANSWER	REFERENCE	QUESTION	ANSWER	REFERENCE
1	B	1-3	15	C	5-3
2	C	1-5	16	D	5-6
3	A	1-12	17	A	6-6
4	D	2-4	18	C	6-11
5	C	2-5	19	D	6-15
6	B	2-6	20	D	6-17
7	D	3-2	21	A	7-3
8	B	3-3	22	D	7-5
9	B	3-5	23	C	7-15
10	A	4-4	24	A	7-17
11	D	4-14	25	A	8-3
12	B	4-21	26	A	8-6
13	C	4-29	27	B	8-5
14	B	5-3	28	D	8-11

Appendix C

GLOSSARY

Ambiguity	A contact that does not correlate with an existing track and does not have enough information to be considered a new track.
Counter Intelligence	Activities undertaken to counter foreign intelligence efforts.
Datum	The most probable location of a search object, corrected for movement over time.
Directive	A written communication that initiates or governs action, conduct, or procedure. Directives are notices, instructions, regulations, and orders.
Foreign Intelligence	Intelligence which relates to any foreign country, including that country's politics, military forces, economy, foreign policy, etc.
Fruit	Non-synchronous replies and noise received by the IFF system.
Instruction	A directive prescribing authority or containing information with continuing reference value or that requires continuing action. An instruction remains in effect until it is replaced or canceled by the originator or higher authority.
Intelligence	Information that is of interest to a consumer who desires to know more about the activities, capabilities, and intentions of the subject of the information.
Interim qualification	Temporary qualification while personnel completes all sections of the required PQS. See lesson 1 for specific guidance.
Job Qualification Requirement	Locally produced PQS manuals that are produced when no existing PQS covers a specific watch station.

Glossary

Leeway	The movement of an object through the water due to the pushing force of the wind.
Manual	A permanent type of instruction containing 25 or more pages. Manuals require a table of contents and must be organized by chapters and sections. When a manual imposes reporting requirements, those requirements will appear in the transmittal instruction prescribing it. Manuals must be reviewed annually for content and are canceled by the originator or a higher authority. When the contents are no longer applicable, the information is canceled or superseded.
Near Real Time	A term, normally used when dealing with tactical data links, that implies the data being displayed is between 2-5 seconds old.
Notice	A directive of a one-time or brief nature with the same force and effect as an instruction. All notices have self-canceling provisions. Notices remain in effect until date of cancellation and are automatically canceled after one year.
On Board Training Team	A team of senior personnel aboard cutters who are responsible for planning, conducting, assessing watch station performance, and evaluating all drills and exercises.
Operational Intelligence	Intelligence required for planning and executing all types of operations. Includes military, law enforcement, or contingency planning. "Fleet" intelligence.
Originating Authority	<p>The official by whose authority and under whose title a directive is issued. Those authorized to issue directives are:</p> <ul style="list-style-type: none">• The Commandant.• Area, district, and group commanders.• Commanders, maintenance and logistics commands.• Commanding officers and officers-in-charge.

Glossary

Personnel Qualification Standard (PQS)	A qualification system wherein certification of a minimum level of competency is required.
PQS qualifier	In a specified field, an acknowledged expert of qualification who is entrusted with protecting the integrity of the PQS system.
Security	Measures taken to protect information that may be valuable to a foreign government.
Standard Answer Books (SABs)	Books that contain the minimum amount of information necessary for qualification in a watch station.
Strategic Intelligence	Intelligence required for policy decisions and military planning at the national or international level. “Big Picture” intelligence.
Solid State	Electronics that use signals that pass through solid semiconductor material such as transistors and diodes as opposed to vacuum tubes where signals pass through a vacuum.
Tactical Intelligence	Intelligence required for planning and execution of tactical operations. “Battlefield” intelligence.
Track	An object such as a ship, submarine, land unit, or aircraft that has been entered into the GCCS system.
Track Spacing	The distance between two adjacent parallel search legs.

Appendix D

ACRONYM GLOSSARY

AAW	Antiair Warfare
ACP	Allied Communications Publication
AMIO	Alien Migration Interdiction Operations
AOR	Area of Responsibility
ARPA	Automatic Radar Plotting Aid
ATO	Air Tasking Order
AXP	Allied Exercise Publication
CAP	Combat Air Patrol
CASP	Computer-Assisted Search Planning
CGIS	Coast Guard Investigative Service
CGSR	Coast Guard Standing Requirement
CIA	Central Intelligence Agency
CIC	Combat Information Center
COLEMP	Collection Emphasis
COLOP	Collection Opportunity
COMINT	Communications Intelligence
CPA	Closest Point of Approach
CRT	Cathode Ray Tube
CSB	Collection Support Brief
CT	Coordinator Mode (FOTC)
DCI	Director of Central Intelligence

DIA	Defense Intelligence Agency
DLRP	Data Link Reference Point
DLS	Decoy Launching System
DMB	Data Marker Buoy
DOE	Department of Energy
DR	Dead Reckoning
DRT	Dead Reckoning Tracer
ELINT	Electronic Intelligence
EPIC	El Paso Intelligence Center
FBI	Federal Bureau of Investigation
FIR	Field Intelligence Report
FOTC	Force Over the Horizon Coordinator
FXP	Fleet Exercise Publication
GCCS	Global Command and Control System
GDOC	Geographic Display Operations Computer
HF	High Frequency
HFDF	High Frequency Direction Finder
HUMINT	Human-source Intelligence
ICC	Intelligence Coordination Center
IFF	Identification Friend or Foe
IIR	Intelligence Information Report
IMINT	Imagery Intelligence
INR	Bureau of Intelligence and Research
JIATF	Joint Interagency Task Force

JMCIS	Joint Military Maritime Command Information System
JOTS	Joint Operational Tactical System
JQR	Job Qualification Requirement
LAN	Local Area Network
L/E	Law Enforcement
LETR	Law Enforcement Track Record
MARDEZ	Maritime Defense Zone
MASINT	Measured and Signature Intelligence
MIDB	Modernized Intelligence Database
NCS/NECOS	Net Control Station
NIMA	National Imagery and Mapping Agency
NIP	Notice of Intelligence Potential
NM	Nautical Mile
NPT	Non-Participant Mode (FOTC)
NRO	National Reconnaissance Office
NSA	National Security Agency
NSM	National Search and Rescue Manual
NTCS	Naval Tactical Command System
NTDS	Naval Tactical Data System
NTP	Naval Telecommunications Publication
NWP	Naval Warfare Publication
NVG	Night Vision Goggles
OBTT	On Board Training Team
OIS	Office of Intelligence Support

ONI	Office of Naval Intelligence
OSINT	Open Source Intelligence
OTCIXS	Officer in Tactical Command Information Exchange System
PIF	Personal Identification Feature
PIM	Position and Intended Movement
POD	Probability of Detection
PPI	Planned Position Indicator
PQS	Personnel Qualification Standard
PT	Participant Mode (FOTC)
RFI	Request for Information
RP/RRP	Remote Radar Processor
RUTH	Radio User Telephone Handbook
RUM	Radiotelephone Users Manual
SAB	Standard Answer Book
SABR	Sighting and Boarding Report
SAR	Search and Rescue
SARMIS	Search and Rescue Information Management System
SCCS	Shipboard Command and Control System
SCIF	Sensitive Compartmented Information Facilities
SID	Subscriber Identification
SIGINT	Signals Intelligence
SITREP	Situation Report
SLDMB	Self Locating Data Marker Buoy
SOAP	Stand-alone Operator Position

SORTS	Status of Resources Training and Supplies
SRBOC	Super Rapid Blooming Offboard Chaff
SSIC	Standard Subject Identification Code
TACAN	Tactical Air Navigation
TADIL	Tactical Data Link
TADIXS	Tactical Data Information Exchange System
TBOP	Table/Bulkhead Operator Position
TDA	Tactical Decision Aid
TOI	Target of Interest
TWC	Total Water Current
UHF	Ultra High Frequency
VHF	Very High Frequency

Appendix E

REFERENCES

COMMERCIAL PUBLICATIONS

An Intelligence Resource Manager's Guide

Consumer's Guide to Intelligence (CIA)

Federation of American Scientist Web Page, www.fas.org

Marine Navigation 1, Piloting Second Edition, Richard R. Hobbs

National Foreign Intelligence Community Course Textbook

NAVY PUBLICATIONS

JMCIS Afloat Unified Build Software Users Manual (April 1997)

Operations Specialist 3&2 Volume 2, NAVEDTRA 10146

Mobility, Logistics, Fleet Support Operations, Non-Combat Operations and Explosive

Ordnance Disposal Exercises Publication, FXP-4 (series)

Strike Warfare, Anti-surface Ship Warfare, Intelligence, Electronic Warfare, and Command, Control and Communications Exercises, FXP-3 (series)

WHEC 378 Class Tactical Manual, NWP 3-20-6.23

WMEC 270 Class Tactical Manual, NWP 3-20-6.22

COAST GUARD PUBLICATIONS

C2Cen Web Page: http://www.uscg.mil/hq/c2cen/fr_out.htm

Cutter Training and Qualification Manual, COMDTINST M3502.4 (series)

Coast Guard Directives System, COMDTINST M5215.6 (series)

Coast Guard Correspondence Manual, COMDTINST 5216.4 (series)

References

Coast Guard Telecommunications Manual, COMDTINST M2000.3 (series)

National Search and Rescue Manual, Volume I, COMDTINST M16120.5

National Search and Rescue Manual, Volume II, COMDTINST M16120.6

Coast Guard Addendum to the National Search and Rescue Manual, COMDTINST M16130.2 (series)

Cutter Navigation Standards and Procedures, COMDTINST 3530.2 (series)

Operators Manual for AN/SPS-73 Surface-Search Radar (TM-SSR-1 Rev A)

United States Coast Guard Operational Intelligence Handbook

COMPACAREA Intelligence Information Report Handbook

COMPACAREA Photographic Intelligence Collection Reference Guide

COMLANTAREA FIR Preparation Guide

Coast Guard Intelligence Manual (Draft 2000 Revision)

Annex B to LANTAREA SOP - Command Intelligence Officers Handbook

PACIFIC AREA INSTRUCTION 3821.1 – Coast Guard Pacific Area Field Intelligence Report

Request for Feedback – RD1 (CIC Operations for OS1)

Suggestions and Corrections

Please note your suggestions, corrections, and comments below.

Page	Location on Page	What Correction is Needed

Your Comments

If you were writing this pamphlet, what improvements would you make? What was good about it? What did you not like about it? Please be specific in your comments/suggestions.

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Please provide the following so that we can contact you if needed.

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		()

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